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R E P O R T   R E S U M E S

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USE OF A TAXONOMY OF QUESTIONS TO INCREASE THE VARIETY AND QUALITY OF THOUGHT IN THE CLASSROOM.

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OVER A PERIOD OF 4 YEARS A TAXONOMY OF QUESTIONING TO INCREASE VARIETY AND QUALITY OF THOUGHT IN THE CLASSROOM WAS DEVELOPED BY THE AUTHORS OF THIS REPORT. DURING AUGUST 1964 APPROXIMATELY 50 ELEMENTARY, JUNIOR HIGH, AND SENIOR HIGH SCHOOL TEACHERS WERE INVITED TO A WORKSHOP TO RECEIVE INSTRUCTION CONCERNING THIS DEVELOPMENT. THIS REPORT DISCUSSED THE WORKSHOP AND THE REACTIONS OF TEACHERS TO IT. OTHER SECTIONS INCLUDED WERE (1) A PRESENTATION OF THE EARLY INSTRUCTIONAL UNITS BASED ON THE TAXONOMY OF QUESTIONS, (2) SUGGESTIONS FOR IMPROVEMENTS ON THE MANNER IN WHICH THE RATIONALE IS PRESENTED TO TEACHERS IN PRESERVICE OR INSERVICE TRAINING, (3) AN EXPANSION OF THE ORIGINAL RATIONALE INTO A NEW APPROACH TO CURRICULUM DEVELOPMENT, (4) SAMPLE COURSES OF STUDY FOR ELEMENTARY SOCIAL STUDIES AND SCIENCE THAT WERE COMPOSED UNDER THE NEW APPROACH, AND (5) A RESEARCH PROPOSAL DEVELOPED DURING THE COURSE OF THE PROJECT. (JC)

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FINAL REPORT

Small Grant Proposal S - 316 - 64

Project: S - 168

Contract Number: OE - 5 - 10 - 116

TITLE

Use of a Taxonomy of Questions to Increase the Variety and Quality of Thought in the Classroom

INITIATING INSTITUTIONS

Manitowoc, Wisconsin Public Schools
Wisconsin State Department of Public Instruction

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Section I

INTRODUCTION

During the years 1960 to 1964 a rationale was developed in Manitowoc, Wisconsin, designed to assist teachers to ask better questions in class discussion, homework, and on tests.[1] The Small Grant Proposal reported on here aimed at testing and improving the rationale.

During August, 1964, nearly fifty Manitowoc teachers met in a workshop for one and one-half weeks. Elementary, junior and senior high school teachers took part. The basic procedure on each day was to present to the group a general introduction to one or two categories of questions and then allow the participants to study the appropiate chapters in the rationale and answer the questions at the end of the chapters. Problems that arose were considered in meetings of the total group. Each teacher selected a unit he planned to teach and composed questions on this unit. However, the main goal of the workshop was not to develop units but rather to master the categories of questions. The questions composed each day were turned in and a staff member evaluated each paper and wrote criticisms in the margins.

Several special presentations were made to the group. To give more meaning to the analysis category, a report was given on the process of induction as it related to questions and another on the nature of the study of semantics. A demonstration was performed showing how almost any lesson can be taught on several cognitive levels. The point was that a teacher must decide the mode of instruction most appropriate for the lesson and class. To show the dimension of interpersonal relations in instruction, the workshop was presented a description and demonstration of Flander's Interaction Analysis. As a culminatin experience, a movie of an English lesson was shown and the members of the workshop were asked to analyze and evaluate the instructional strategy.

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[1] The rationale will be published by Harper and Row in the fall of 1965 under the title, Classroom Questions: What Kinds?

Following are reactions of the staff members as to the outcomes of the workshop:

1. The objectives and procedures of the workshop were readily accepted by the teachers.
2. Although some participants mastered the rationale on questioning better than others, there were few or none who made no progress.
3. Everyone assimilated the definitions of the kinds of categories at least on the translation level. Most were able to recognize questions in each category. The weakness came in applying the ideas to their own units. Every participant was able to compose a few questions on his own unit, but for a substantial number it was a struggle. Most teachers did not master the rationale sufficiently to be able to use it easily on the application level.
4. The fact that the examples in the rationale were entirely taken from the social studies did not stand in the way of understanding by teachers in other subject fields. The definitions of kinds of questions proved easily transferable to other academic subjects.

During the school year 1964-1965 and in the summer of 1965, many teachers in the original group were paid for weekend and vacation work on units based on the taxonomy of questions. Although several of these units were of a good quality, they brought to light a number of deficiencies in the original rationale on questioning. Section II of this report presents some of these early units and an analysis of each. Section III suggests improvements in the manner in which the rationale is presented to teachers in preservice or inservice training. Section IV expands the original rationale into a new approach to curriculum development. Section V is made up of sample courses of study for elementary social studies and science that were composed under the new approach to curriculum development. A research proposal developed under this project makes up Section VI. The final Section VII presents the federal and local expenditures for this Small Grant Proposal S-168. The Table of Contents presents a breakdown of the subtopics considered in each section.

The use of two colors of paper is an effort to make the organization easier to follow by the reader. The explanations and evaluations are printed on white paper, while all sample units and expansions in the rationale on questioning are printed on yellow paper.

Section II

SAMPLE UNITS AND LESSONS BASED ON THE ORIGINAL RATIONALE

The teachers who wrote the units and lessons in this section were given great latitude as to format. All had been introduced to the rationale on questioning and were charged to use it in developing the units or lessons for their own classes. This proved a wise approach as several plans of organization were developed which were useful in later parts of the project.

In some cases the significance of the units was mainly in the things the teachers were unable to do. These weaknesses identified the parts of the rationale on questioning that needed further development.

Each unit or lesson in this section is preceded by a white page of analysis. Ideas from these analyses were used to refine the rationale as described in subsequent sections.

SOUTH AMERICA: FIFTH GRADE

The fifth-grade social studies curriculum in Manitowoc provides for a regional study of the United States followed by a brief consideration of Canada and South America. This unit is prepared on the South America. The questions in the unit obviously reflect the patterns suggested by the rationale on questioning. On the interpretation level the teacher makes good use on comparisons, analogies, and irrelevant item problems. Question 46 is based on sixty slides the teacher had made of various scenes in South America. Parts B and C of that question have a strong leaning toward application thinking. Several other application questions require the students to use map or graph skills.

The teacher is sensitive to economic and geographic forces operating in Latin America. This is illustrated particularly in Questions 4-17. The thinking required of students in these questions is difficult to determine because it depends on the amount of information provided by the textbook. The answer to Question 11, for example, could easily be deduced by students but the answer is probably presented in the book. This problem of the textbook spoiling apportunities for thinking is demonstrated time and again in these units. Several questions in this unit are somewhat unusual in having students make predictions based on certain principles. Examples of these are Questions 36, 40 and 45.

An interesting point is that when the teacher defines the subject matter on the first two pages he uses the traditional approach of outlining a description of geographic and economic features of South America. The subject-matter outline does not mention the geographic and economic functions, forces, or skills that the students are called upon to use in the most challenging questions. When composing higher level questions the teacher finds it necessary to switch attention to a different kind of subject matter. The unit would be made stronger if it plainly designated the important concepts to be taught and then showed how these ideas are applicable to South America. The more descriptive information of South America that students can assimilate the better, but this information is not the most important aspect of the unit.

This unit demonstrates the need to expand the rationale on questions by describing more explicity the kinds of subject matter that are most amenable to higher level questions.

Fifth
SOUTH AMERICA - ~~SIXTH~~ GRADE

Making a Living in the Amazon

- I. Farming
  - A. Crops
    - 1. Corn
    - 2. Manioc
    - 3. Bananas
    - 4. Rice
  - B. Cattle
- II. Lumbering
  - A. Trees widely scattered
  - B. Work scarce
  - C. Few roads
- III. Exports
  - A. Nuts
  - B. Rubber
- IV. Rubber
  - A. Cuts bark (top tree)
  - B. Hangs cup to catch latex
  - C. Collects latex
  - D. Hardens latex

Problems of the Llaneros

- I. December and January (Winter)
  - A. Grass gets dry and brown
  - B. Must drive cattle for miles for food and water
- II. Summer
  - A. Floods
  - B. Cattle crowd together on high land
- III. Autumn
  - A. Mosquitos
  - B. Mud holes
  - C. Disease
  - D. Drying of land again

South America (continued)

Three Chiles

I. The North

A. Climate
1. Winds are warmed over land
2. Winds pick up moisture making desert

B. Resources
1. Nitrate
2. Copper

II. Central Chile

A. Climate
1. Mild rainy winters
2. Dry summers

B. Products

1. Grain
2. Cattle
3. Fruit
a. Grapes
b. Lemons
c. Oranges
d. Plums

III. Southern Chile

A. Stormy in every season
B. Few products

1. In what ways is coffee growing in Brazil different from coffee growing in Colombia.

2. Compare the map on page 315 with the one on page 337. What disagreement do you notice between the two maps?

3. Is coffee growing in Colombia different or the same as coffee growing in Brazil? Give page and paragraph number to support your answer.

4. What conditions help to make cacao and bananas the leading crops on plantations near Guayaquil?

5. What two things caused the Spaniards to choose the site for the city of Lima?

6. ____________, ____________, ____________, and ____________ are reasons why mining is difficult in the Andes of Peru. Page 328

7. What conditions have made Iquitos the business center of the upper Amazon?

South America (continued)

8. What geographic conditions help to make Barranquilla the leading city of the lowlands?

9. Why is coffee the most important crop of Colombia?

10. What had led to the increase in manufacturing in Colombia?

11. Why is there more herding than farming near the city of Bogota?

12. What geographic conditions make transportation difficult in Colombia?

13. What has led to the great changes in the lives of the people of Maracaibo?

14. What geographic conditions give the coffee farmers of Venezuela an advantage over those of Colombia?

15. Why does coffee from Venezuela bring less money per pound than Colombian coffee?

16. What could lead to the improvement of the cattle industry in Venezuela?

17. What two things have made Cuidad Bolivar a busy transportation center?

18. Which cities are most similar in amount of rainfall:
A. (1)Bahia Blanca;(2) Iquitos; (3) Bogota (4) Salt Lake City
B. (1) Chicago; (2) Montevideo; (3) Arico; (4) Manaus
C. (1) Caracas; (2) Santos; (3) Cordoba; (4) San Diego
D. (1) Belem (2) Maraciabo (3) Rio de Janeiro (4) Georgetown
E. (1) St. Paul; (2) LaPaz; (3) Corumba; (4) Paramaribo
F. (1) Birmingham; (2) Mobile; (3) Porto Alegre; (d) Spokane

19. Draw a graph to show the percent of the area of Colombia is now used for farming.

20. Using the maps on pages 284 and 314, draw a graph showing the rainfall in:
A. Montevideo, Uruguay
B. Iquitos, Brazil
C. Caracas, Venezuela
D. Manaus, Brazil
E. LaPaz, Bolivia
F. São Paulo, Brazil

21. The fazenda is to Brazil as the __________ was to the Southeastern United States.

22. Santos is to São Paulo as La Guaira is to __________.

23. A fazenda is to Brazil as an __________ is to Argentina.

24. A __________ is to Brazil as an estancia is to __________

25. A __________ was to Southeastern United States as a fazenda is to __________.

South America (continued)

26. A ____________ was to Southeastern United States as an estancia is to ____________.

27. Great Plains are to the United States as the ____________ are to Argentina.

28. The Rocky Mountains are to North America as the ____________ ____________ are to South America.

29. The Mississippi River System is to the United States as the ____________ ____________ is to Brazil.

30. The Amazon River is to Brazil as the ____________ ____________ is to Venezuela.

31. The ____________ ____________ is to Argentina as the Orinoco River is to Venezuela.

32. Cocaine is to coca as ____________ is to cacao.

33. Manioc is to ____________ as cacao is to chocolate.

34. Compare the Argentine Pampa with the Great Plains of the United States with respect to:
A. Climate
B. Crops
C. Land surface
D. Population
E. Size of farms

35. Using the maps on pages 8, 9, 17, 284 and 315 compare the cities of Miami and Asuncion with respect to:
A. Latitude
B. Distance from the sea
C. Rainfall
D. Elevation

36. Bogota, Colombia and Iquitos, Peru are about the same distance from the Equator. Using the maps on pages 314 and 315, write a short paragraph describing what your think the climate of each city would be and why you think so.

37. Number in sequence: Coffee Production
__ The berries are graded
__ The berries are stripped from the branches
__ The husks are removed
__ The soil is cultivated and weeds are killed
__ Bags of coffee are hauled to a railroad
__ Harvest usually begins in May
__ The coffee is dried
__ Trees are planted on hilltops
__ Coffee is collected at Santos
__ Berries are separated and waste removed
__ Berries are raked together
__ Coffee is socked for shipment

38. The pictures on page 332 were taken during the summer months of ____________, ____________, and ____________.

FIRST GRADE SCIENCE

The conceptual approach is to be used in first grade science. Our "big ideas" are called concepts. We will develop two kinds of big ideas (concepts) namely:

1. Process concepts: Relating to the method of scientific thinking. Children will be helped to use some simple processes.
    a. Observation
    b. Space/time

2. Content concepts: Relating to subject matter
    a. Living things
    b. Matter
    c. Energy

PART I CONCEPTS

I. Process Concepts

A. Observation: Develop the skill of accurate observation by using all of the senses.

B. Space/time
    1. Space/time concepts include an understanding of volume, shape, area, distance, directions, time, etc.
    2. We will begin concepts of volume, shape, and time.

II. "Powerful" Content Concepts

A. Living things
    1. All living things are either plant or animal.
    2. Living things need air, water, sunlight, food.
    3. Living things grow and respond to stimuli.
    4. Some things are not living things.

B. Matter
    1. Matter is made up of living and nonliving things.
    2. Matter is anything which takes up space and has weight.
    3. There are many kinds of matter which have different properties.
    4. Matter may be either solid or liquid.

C. Energy
    1. Energy is used to push and pull (cause motion)
    2. More energy is used to move heavy objects than light objects.

PART II SUGGESTIONS FOR TEACHING THE ABOVE CONCEPTS

I. Living things

A. All living things are either plant or animal
    1. Activities
        a. Make a list of all the living things that the children can name and decide whether they are plant or animal.
        b. Plan a trip to the zoo. Look for plants and animals and note the movement in animals in contrast to the stationary condition of plants.

2. Liquids -- milk, oil, water. Let children run their fingers through the water. Pour some into different shaped containers. Notice what happens to the shape. (Fits the container)

Outcome

Solids have a shape of their own and occupy a definite space.

Liquids have no shape of their own but take the shape of that container that they occupy.

III. Energy: Is the ability to produce motion.

Tell me what this means? What does motion mean?

A. Pushing and pulling

Experiment 1: Take one book and a stack of books. Which one was harder to push? Which one took more energy? Refer to Science book, pages 4-5.

Experiment 2: Show pulling in a similar manner. Use an empty box and a full box of books.

Experiment 3: Heavy and light -- Have children hold something heavy on one hand and something light in the other. Which is heavy? Which is light? Which takes more energy to hold? Which takes less energy? What have we learned about energy? Worksheet from Science Comes to Life, page 20.

PART III FUTURE PLANS

These concepts will be developed throughout the year and improved upon as we gain new insights. More advanced concepts might be developed where we feel the capabilities of the children warrant.

We would like to share this outline with other teachers who are interested in this approach. This material does not replace the Science in Health Grade 1 outline, but rather develops a new approach to science teaching.

Experiments

Think about a bird -- Is it a living or a non-living thing? Why?

Show a wind up toy. Is this a living or non-living thing? Why?

Give chart and have children check things to show whether items are living or nonliving.

II. **Matter** -- Matter is anything that takes up space and has weight.

A. Kinds of Matter -- Can you think of some things that take up space? Let's list some.

1. wood
2. glass
3. milk
4. water
5. rubber
6. metal
7. leather
8. cotton
9. plastic

etc.

Activity 1. Collect pictures for a bulletin board that show the uses man has for such materials.

Activity 2. Show several objects. Show that they have weight and take up space. (Use simple scale) Weigh things and put things in a box to show they take up space. Show how children in a circle take up space.

B. Properties of Matter

Blindfold children. Give them an opportunity to feel things for shape and texture. What did you use to find out how these things felt? (Hands -- sense of touch). What other things can you touch?

Next A.A.A.S. Observation 4. Perception of Sound, Page 39 in guide part 1.

Sense of Taste -- collect things which develop the sense of taste (sweet, sour, bitter, salt)

Next A.A.A.S. Observation 5. Perception of Odor, page 45 in guide part 1.

Sense of Sight -- name things you have seen on a trip. Play the game "On the Way to School Today I Saw" then dramatize what it was and have the children guess.

Next A.A.A.S. Observation 7, page 71, in guide part 1.

C. Matter has weight

1. Some things float in other things. Use Science text pages 38-39.

D. Matter as solids and liquids

1. Solids -- chalk, toy animal, beads, clay, etc. Have the children handle the solid objects, move them from an empty glass, to a box, to a dish. Do their shapes change?

2. Observations
   a. Touch an insect with a twig. What does it do? Touch a growing plant. Does it do anything?
   b. Pull up a plant and observe how it is fastened to the ground (roots). This is the way plants get their food.
   c. Observe the physical characteristics of the plants and animals.
   d. Use magnifying glasses on the trip to examine plants.
   e. Observe how animals move about, their covering on the outside of bodies, food.

B. Kinds of plants and animals
   1. Plants -- trees, flowers, grass
   2. Animals -- birds, fish, insects, animals
      a. movement
      b. size
      c. covering

Animal	Size	Covering	No. of feet	Wings	Claws	How it moves
dog	large	fur	4	no	yes	walks or runs
cat						
etc.						

Questions

1. Why is it necessary for most animals to be able to move around?

2. Why is it not necessary for most plants to be able to move around?

C. Characteristics of living things.
   1. Similarities of living things
      a. All need air, water, sunlight, food
      b. All grow
      c. All respond to stimuli
   2. Differences
      a. Animals move but plants do not move
      b. Living things differ in size, shape and color.

D. Non-living things

   1. Is a table a living thing? Why? Use other non-living things.
   2. What are some things we could say about no-living things? (Characteristics)

      a. Do not move by themselves
      b. Do not need air
      c. Do not need water
      d. Do not need sunlight

SECOND GRADE SCIENCE

Introductory Statement

Second grade children are to continue to develop the skill of observation. Children learn about the world around them through the use of the five senses--sight, hearing, smell, taste, and touch. We are to give training in the use of these senses. Through the process of observation pupils can be taught to think more clearly. Whatever the problem, the child's ability to observe should be extended even when simple phenomena are under study.

Some exercises that will bring out process of observation from the AAAS materials are:

Book 1, Observation 8: Observing Solids Changing to Liquids
Observation 9: Observing Some Properties of Magnets

Book 2, Observation 11: Observing the Weather
Observation 13: Observing Rolling Balls
Observation 15: Seeds and Seed Germination

Space/time relations are to be taught early. Unless pupils acquire these fundamental competencies early, they may in fact never acquire them.

The space/time concepts will be developed at this grade level through manipulation of objects, visualizing objects and shapes, and the introduction of measurements of space and time.

Some exercises from AAAS materials that will bring out space/time concepts are:

Book 1, Space/Time 3: Spacing Arrangements
Space/Time 4: Direction
Space/Time 5: Time
Space/Time 7: Direction and Distance

Book 2, Space/Time 11: Curved Lines, Straight Lines and Surfaces

Some additional process approaches from the AAAS materials that may also be used are:

Book 2, Classification 4: Classification Using an Aquarium
Communication 3: Information Please

I. Process Concepts
  A. Observation Concepts
    1. The process of sensory observation (use of five senses) is a fundamental tool in scientific activity.
    2. Sensory discrimination stimulates curiosity.
    3. Observations should be accurate and precise.
    4. Observations lead to hypotheses which can be tested.

5. Observations can be recorded through description and measurement.
6. In observation it is important to identify the unusual in the usual.
7. Observation leads to the process of classification.

B. Space/Time Concepts
   1. Space/time concepts include an understanding of:
      a. Shape and volume
      b. Direction and distance
      c. Straight and curved lines on both flat and curved surfaces
   2. Understanding the shape, size and internal structure of a living thing is dependent upon the concept of space/time.
   3. Understanding motion and the sequence of events depends on the space/time concept.

II. Content Concepts
   A. Energy
      1. Energy means the ability to push or pull an object.
      2. Energy is needed to move things.
      3. There are many kinds of enery to do work:
         a. Body energy (muscles) (Macmillan Science/Life Series, Grade 2)
            1. foods -- pp.44-45
            2. work -- p. 82
         b. Electricity -- p. 101
         c. Water energy -- pp. 98-100
         d. Magnetic -- pp.92-95
         e. Moving air -- pp. 96-97
            pp. 53-57
         f. Mechanical -- pp. 82-91
         g. Radiation -- pp. 51-52
   B. Matter
      1. There are many kinds of matter--wood, plastic, metals, powder, air.
      2. All matter has weight and occupies space.
      3. Matter exists in a liquid, solid or gas state.
      4. Each kind of matter has different characteristics (prpperties)
         a. hot-cold, black-white, texture--rough-smooth
         b. Air has weight. (Show this by experiment with balloons filled with different amounts of air. Use a balance to measure weight.)

            Generalization: Matter has weight and you can weigh air (by experiment), so air is matter.
      5. Molecular activity of matter helps to explain the states of matter (solid, liquid, gas).
         a. water to gas -- pp. 64-65
         b. water to ice -- pp. 67 (Macmillan Science/Life Series 2)
         c. evaporation -- pp. 59-60
         d. condensation -- pp. 61-64
   C. Living Things
      1. All living things depend on their environment for the necessary conditions of life. (water-air-food)

a. Why we need plants and animals -- pp. 112-116

b. Plant and animal habitats -- pp. 108-111-128

c. Needs of birds who are permanent residents or visitors -- pp. 131-137

d. Growing plants in various ways -- pp. 120-126

2. Living things are adapted by structure and function to their environment. The more perfectly a plant or animal is adapted to its environment, the better its chance to survive.

a. How pets differ in structure -- p. 127

b. Animal adaptation to environment

1. Frog -- pp. 129-130

2. Fish-Snails -- pp. 20-24

c. Plant adaptation to environment

1. Water plants -- pp. 20-24

2. Forest plant life -- pp. 117-119

3. Some animals go thru different stages in their development (Metamorphasis)

a. Moths and butterflies -- pp. 12-19, 130

b. Frog -- p. 130

III. Means of Presenting Process Concepts

A. Observation

1. Observation exercises in the AAAS materials can be used to introduce this concept. (See introductory statement for books and numbers.)

2. Present direct personal observations such as identifying things by their smell, taste, shape, texture, movement, size, sound, and other features. (Suggested materials: pencil, chalk, fresh fruit, onion, flowers, glass, wooden blocks, bell, paper towels, jars with water and sand.)

3. When students have completed these observations they can read the book material. (Macmillan Science/Life-2 pp. 1-25) Pupils should be able to identify and use the observation concepts.

B. Space/Time

1. Space/time exercises in the AAAS materials can be used to introduce this concept. (See introductory statement for books and numbers.)

2. Space/time concepts do not lend themselves directly to the content material in our text books. The AAAS materials are the best source and should be used when the individual teacher thinks it fits into her work.

3. One possible example after using AAAS materials might be worked into the weather unit (Macmillan Science/Life-2 pp. 46-47 by recording daily weather events.

IV. Means of Presenting Content Concepts

A. Energy

1. This concept may be presented to the pupils through the process of observation. A demonstration by pupils pushing or pulling objects across the room could lead to a discussion bringing out the concept of work which means to push or pull something a distance. The teacher

at this point would introduce the word energy.

2. There are many kinds of energy that do work. This is shown in the units listed under Energy Concepts. These concepts can be developed through the use of Macmillan textbook.
3. This concept may be presented to the pupils through the process of space/time. To illustrate the power of energy in motion have two pupils demonstrate. One will remain motionless, while the other shows motion by exerting energy. Similar comparison can be made by using cars.

B. Matter

1. Through the process of observation children could be led to identify the various kinds of matter. Pupils will be expected to draw upon previous AAAS observation process skills to recognize forms of matter that are present in the classroom.
2. Using the experiment that air has weight (Balloons with and without air and balance), you would show a characteristic (property) of matter.
3. The state of matter (solid, liquid, gas) can de developed through the use of the Macmillan textbook. The units are listed under IIB. The process of observation will be used to develop these concepts. An example might be the disappearance of water from an aquarium or from a pan of water.
4. Space/time concepts involving things as shape, volume (big, little, large, small, pint, quart), straight and curved lines on both flat and curved surfaces are all present in our arithmetic course of study. Special attention is to be given at the appropriate time.

C. Living Things

1. Using the process skills of observation which they have been taught, lead the pupils to relate first hand observation experiences of living things.
2. This concept may be taught through the use of pictures other than the textbook. Try to illustrate living things seeking the kind of environment where they can obtain the things they need to survive. An example might be the desert (where animals and plants require very little water) or a lake (where animals and plants live or grow directly in water.)
3. Use a film or filmstrip showing the life cycle of either a frog or a butterfly. Stress the shape, size, and internal structure of a living thing and show that it is dependent upon the concept of space/time.

V. Description of Questions Using the Concepts of Observation and Space/Time

A. The AAAS observation and space/time exercises contain good questions on the interpretive level.
B. Evaluate the observational processes by presenting a series of pictures depicting the five senses in use. A possible question: "What observational processes can you see in each picture?"
C. Children are asked to draw the life cycle of a butterfly or moth. In this activity the pupils are to bring out the sequence of events depending on the space/time concept.
D. An example that would be useful is found in AAAS Observation II--Observing the Weather p. 173 last paragraph.

VI. General Strategy for Application, Analysis, Synthesis, and Evaluation Based on Process Concepts of Observation and Space/Time.

A. Teacher may set up three possible work stations about the room, with several pupils at each. Each station will have different things to observe. (Example: a plastic bag filled with a blue liquid, a ticking clock in a concealed box, a dish containing a sponge soaked in vinegar). Directions are given: "You are to carefully observe what is before you using your five senses. After you have finished your observation, return to your desk and record all your observations." If desire, the teacher may wish to use the tape recorder as a help for slow students. (Application)

B. Pupils are to be taken on a short neighborhood walk or field trip. Have each pupil bring back some article that may be observed. (Example: wood, stone, leaves, etc.) Directions are given: "Using your five senses, you are to carefully observe your object as to shape, size, volume, and lines. Write up your finding." (Application)

C. Teacher may have pupils work by rows with each row having an object to observe. (Example: bar of soap, ice cubes, carrot, a burned candle, waxed paper cup, magnet, shoe) Directions are given: "You are to carefully observe the object in your row using your five senses. Follow this with a written report on your observations." (Application)

This activity can be carried to a further level of thinking by having the pupils read observational reports to the class (by rows). The class could then choose the best description by asking the questions: "Which observation is the best and why?" This is an established pattern that could be used in units throughout the year. (Evaluation)

D. This strategy is to be used near the end of the year. After all the observation lessons have been completed pupils are asked to think back over observation processes. Each pupil is asked to make a list of rules and ideas that he thinks should be used in making all future observations. (Synthesis)

Note:

Our science concepts fall into two groups: The process concepts of observation and space/time and the content concepts of energy, matter, and living things. The process concepts lend themselves very well to the higher levels of thinking. This we have tried to show in our "General Strategy." The content concepts do not seem to work in as well on a higher level of thinking because they tend to be descriptive and a limited amount of knowledge is available at this grade level. These seem best suited for Memory (remembering) and Interpretation (thinking out) categories.

VII. Interpretation (thinking out) Questions Based on Content Concepts Energy, Matter, and Living Things

A. Teacher will define energy. (The ability to push or pull an object). Next teacher will state, "Give as many examples of energy as you can."

B. After a brief review of content concepts, these oral examples may be given and pupils asked to write the concept illustrated (content concepts may be written on blackboard)

1. Boy sharpening a pencil
2. Water lily
3. Roadrunner
4. Sweater
5. Log floating down the river
6. Lizard
7. Raising a flag on a flagpole
8. Chewing gum
9. Dog
10. Pushing a wheelbarrow
11. Hair ribbon
12. Riding a bicycle
13. Winding a watch
14. Going barefoot on a summer day
15. Using a window fan

(This is an established pattern that could be used throughout the year)

C. Check the answers that are true

Plants and animals are the same because

____ they both need water
____ they both move
____ they both grow

D. Find pictures showing plants that provide us with things we use in our daily living.

E. Draw a green plant showing what would happen if it did not have any sunlight.

F. Check all of the living things

_____ car

_____ rabbit

_____ tree

_____ glass

_____ seal

_____ balloon

_____ flower

_____ sidewalk

_____ moth

G. True of False

_____ A stone is matter because it takes up space, has a shape, and can be weighed.

_____ Milk is matter because it takes up space and can be weighed.

_____ Air is matter because it has weight.

H. List ways in which energy is used in our classroom.

I. Circle the names of all matter you could identify by your sense of taste

wood
apple
cloth
fire
cake
milk
candy
pencil
salt
spam
gum
sugar

J. Check the answers that are true

People and machines are the same in that they both

_____ use energy to move

_____ are living things

_____ can move

K. Some birds fly away in the fall. They go south where it is warmer.

Some birds fly north in the spring. They go north to build their nests.

True or False

_____ All birds fly south in the winter.

_____ Some birds do not like cold weather.

List the things you would do in taking care of the needs of a pet. (choose any one these: dog, cat, rabbit, turtle, bird). Application question)

PRECEDING PAGES MISSING – f-9

sound comes from a living thing. Sit down if the sound is made by something that is nonliving.

(Make sounds behind backs of children)

Strike a piano chord
Sing a little song
Pound on wood with a hammer
Call a childs name
Slam a door
Bounce a ball
Cry like a baby
Bark like a dog

d. Problem 3. In the spring when life-cycles of the butterfly, chick and frog are being watched and stages noted, test for sequence of stages of development.

Question 1. Show pictures of caterpillar, butterfly, and cocoon and have child lay them on table in sequence.

Show pictures of chick, embryo, and egg, etc.

Show pictures of frog, frog eggs, tadpoles and have child lay them on table in sequence.

e. Problem 4. Mix up all of the above pictures.

Question 1. Put the pictures together according to the the right kind.

f. Problem 5. While waiting for eggs to hatch in the incubator.

Question 1. "Imagine you are a chick in an egg. You are almost ready to hatch. What would you be thinking and wondering about?"

(Refer to Kindergarten Science Guide Scott Foresman Science Charts and Manual)

B. Matter

1. Matter is anything that fills up space.

2. Matter may be liquids or solids.

The children will have fun in trying to fill up spaces with different kinds of matter.

a. Problem 1. Provide different size cartons, blocks of different sizes and shapes, a large container of water (near sink) different size containers for pouring and some boxes of sand, small stones, and gravel. This may be done on the porch or on the playground.

Questions leading out of experiences with the above material may be:

(1) What can fill up space?
(2) Can liquids fill up space?
(3) Name some solids.
(4) Name some liquids.
(5) Are you a solid?
(6) How can you fill up the space in this big box?
(7) Point to some other solids in this room that could fill up space.

b. Problem 2. After a bus trip to a dairy farm the children are discussing the fact that milk come from a cow.

Question 1. What is a liquid food that comes from a cow?

c. Problem 3. In the winter the children put water out to freeze and take it in the next day.

Question 1. Tell how a liquid, like water, can be changed into a solid.

Question 2. Tell how a solid, like ice, can be changed into a liquid?

Question 3. What makes icicles disappear during the day?

(Use Kindergarten Science Guide)

AAAS Part one -- Space/Time 3 Observation 8

C. Energy

1. Energy is the ability to move things.

a. Problem 1. The teacher would consciously use the word "energy" in many situations before the concept is introduced. Remarks such as: "You have energy if you can move that big box." Using the word will give meaning to it and the children will begin to use it in their own conversation. Follow this up with planned activities and show how energy can be used to move things.

Questions leading out of experiences with the above material may be:

(1) Move the chair to the table. What did you use to do this? Discussion, then use the word energy.

(2) Fill a cardboard carton with blocks.

b. Problem 2. Introduce wheels of different sizes. Let children tell what vehicle they belong to.

Questions "How could wheels help to move this heavy box of blocks?"

Let all children take a turn to pull the wagon full of blocks and to move it on the floor without wheels (wagon)

c. Problem 3. Call attention to sounds. Let children make sounds using different materials.

Questions: "What sounds do we like to hear? Why?

"What sounds make us happy?"

"What shounds make us sad?"

d. Problem 4. Listen to the records

1. Record suggested in

AAAS Part one - Perception of Sound
Observation 4

2. Pussy Cat's Christmas (Kdgn. Record)

3. Muffin in the Country (" ")

4. Muffin the the City (" ")

Questions: After hearing each record let the children tell what they heard. Then listen again to hear and identify sounds.

To go on from here:

In attempting to use the AAAS materials we are really experimenting with experimental material. Much of it may seem to be stepped up much too high for use on the lefels designated. However, it is excellent background material for the teacher is using the process approach with children. It is a guard against relying solely on incidental material for teaching and does provide boundaries and goals.

In using new materials of this kind we will be helping children to become more conscious of "science" as such. Simple science experiments can be understood and some basic concepts of science accepted.

Whether we continue to use AAAS materials will be better determined after a trial.

Better thinking and questioning could be used in teaching. All teachers are interested; how can we get some of them to record their good questions; be willing to put on demonstrations with children, etc?

SCIENCE 4

Boys and girls of fourth grade, as amateur scientists, possess a driving sense of curiosity and an interest in the world around them. Therefore, through the performance of scientific activities, they can find satisfying experiences in becoming acquainted with the physical world about them, and the thought processes of inference and prediction, and measurement.

ENERGY

I. Energy is the ability to do work

- A. Must move something or stop something from motion
- B. There are different forms of energy
  1. Mechanical
  2. Electrical
  3. Heat
  4. Atomic
- C. Energy can be changed from one form to another
  1. Mechanical to heat
  2. Mechanical to electrical
  3. Electrical to heat
  4. Electrical to light
  5. Electrical to sound
  6. Radiant to heat and light

MATTER

I. Matter is made up of molecules which are in constant motion.

II. Each type of matter has definite properties which determine the use man makes of the matter.

- A. Expansion is due to increase molecular activity.
- B. Contraction is due to decreased molecular activity.

III. There is an interrelationship among matter, energy, and living things.

- A. All living things are affected by factors in their environment.
- B. All living things depend on their environment for the necessary conditions of life.
- C. A characteristic life is usually found in a characteristic environment.
- D. Living things use matter from their environment and return it to their environment.

E. The radiant energy from the sun is necessary to the maintenance and growth of all living things.

F. Safety is a common sense approach to a potentially dangerous situation in one's environment.

  1. There is a cause for every accident and therefore most accidents could be prevented.

SPACE -- The Universe

I. The motion of the earth produces important phenomena

  A. Rotation of the earth causes day and night

  B. Revolution of the earth causes our seasons

  C. Production of eclipses

  D. Our solar system is only a small portion of the universe

    1. The earth is a part of the solar system.

STATEMENT FOR MEASUREMENT

The purpose of measurement in this grade is to give the pupils experience in measuring length and width using inches, feet and yards as standard units, giving pupils experience in estimating length and width, and measuring force in ounces and pounds.

PROCESS

I. Measurement - Making Comparisons Using a Balance

(1) A.A.A.S. - Part 2 - Measurement 4 - Making Comparisons
Using A Blance 195
Activity 1
Activity 2
Activity 3
Generalizing Experience
Appraisal

(2) Measurement 5 - Comparison of Volumes p. 202
Originating Problem
Activity 1
Activity 2
Activity 5
Generalizing Experience
Appraisal

THIRD GRADE SCIENCE

Objective

The concepts of inference and prediction are so important and applicable to any subject that it seems logical to teach them on the third grade level. Children on the third grade level have a natural curiosity to find out about things. We would like to keep this alive. We also want them to learn scientific methods of finding answers to their own questions.

General Strategy

Our plan is to introduce the Third Grade Science units by teaching the meaning of inference and prediction. We will use four exercises dealing with inference from the A.A.A.S. Science Books #3 and #4 during the year.

Following the first A.A.A.S. inference exercise, we will introduce the text using Unit I "Asking and Answering Questions." Following this we will continue with the A.A.A.S. Inference Exercises and introduce the prediction concepts. Throughout the year we will continue to make use of the processes of inference and prediction whenever it is possible in science as well as in other subject areas.

We feel that the content concepts of matter and energy can be taught on a Third Grade Level. The Macmillan Science Life Series 3 includes much that can be used in teaching about energy. The textbook also contains much material pertaining to matter. However, we suggest that the exercise on Matter and Energy from the book Science for Children K-3 p. 95 be used as an introduction to the teaching of the concept of matter.

Patterns of questions have not been developed for teaching the Science Concepts. This should be the next step in this program.

Introductory Statement

The curiosity of children on the third grade level seems to indicate that this is a logical place to introduce the processes of inference, and prediction. Before using the present text it is suggested that the following exercises from the AAAS Science Book #3 and #4 be used as an introduction to the process of inference.

#3 (Inference I p. 385 An Introduction to Inference
(Inference II p. 389 Inferring the Characteristics of Packaged Articles

#4 (Inference III p. 481 Observations and Inferences
Use of term inference
(Inference VII p. 571 Inferences in Familiar Situations

A. Inference concept

1. An inference is an explanation of an observed event or situation (Where there is smoke there is fire).

2. Inferences are based on observations (evidence).

3. The amount of confidence in the truth of an inference is

based on the amount and quality of the evidence.

4. Inferences can be tested or checked by referring to authority.
5. Observation of an event (evidence) may support several inferences.

B. Things the students can do with the concept of inference.

1. Recognize inferences.
2. Distinguish between an inference and an observation.
3. Make one or more inferences based on observations and tell how the evidence supports the inferences.
4. Recognize inferences supported by strong evidence and inferences supported by weak evidence.
5. Judge which of several inferences is best supported by the evidence.
6. Understand that inferences can be tested by authority or experimentation.

A. Prediction concepts

1. In science some events in nature occur with regularity, as an example, the metamorphosis of the butterfly. By the same token a study of events that have already happened sometimes makes it possible to foretell events in the future. This is called prediction.
2. Some predictions can be made with a high degree of confidence because the information being used is reliable, precise, and the event occurs with somewhat definite regularity.
   Example -- stretched spring -- AAAS #3 pages 337
3. Some predictions are not so valid even though the information being used is reliable and precise--other factors may enter in to distort the regularity of the events.
   Example -- declining death rate from typhoid fever over a period of years - then as epidemic may start.
4. Predictions are also invalid if they are based on superstition.
   Example: "Red sky at night sailors delight
   "Red sky in the morning, sailors take warning."

B. Things children can do with the prediction concept

1. Children will be able to distinguish between valid and invalid predictions.

2. They will learn to consider the available information and determine if it is reliable and occuring with enough regularity to arrive at a valid prediction.

3. Thay will learn to graph information in order to determine if a prediction is possible.

4. They will learn to reason from their past or present experiences.

5. They will learn that predictions cannot be based on careless or single observations.

6. They will learn to question the accuracy of sources of information.

7. They will learn to change their ideas as a result of new evidence.

8. They will learn to search for an explanation of things that happen.

SCIENCE 5

General Strategy

Since in social studies we are going to introduce new concepts in economics and map reading at the beginning of the year it may be advisable to introduce science concepts of inference and prediction further along in the school year. The decision as to when this is to be done, will be at the teacher's discretion. We plan to use AAAS materials and Continental Press materials to develop these processes. Prediction will be taught through the use of raw data in both science and social studies.

Controlled experiments on the interpretation level will be introduced later in the year.

Near the end of the year we will develop an intensive unit on matter, relating process concepts to the subject matter.

I. Matter. Subject Matter Concepts

A. Each type of matter has definite properties for which man finds many uses.

B. Matter is made up of molecules which are in constant motion. This motion is responsible for heat.

Experiment: Interp. Heat jar filled with water and it will overflow.

Prediction. What will happen when jar of water is heated?

C. Molecular activity of matter helps to explain:

1. State of matter - solid, liquid and gas

2. Surface tension

Experiment: Fill jar with water and add more with medicine dropper--water will heap up. Then drop in paper clips--see how many can go in before overflow.

Float razor blade for surface tension.

3. Dissolving of a solid in a liquid

Experiment: Sugar)
Salt) controlled experiment

D. Matter consists of elements, compounds and mixtures

Things to teach: Introduce symbols for a few elements and formulas for a few coumpounds such as: H_2O CO_2 FeO

What are their properties and how does man use them because of their properties?

E. Matter may be changed physically and chemically without changing the original amount of matter. It can be neither created nor destroyed.

Experiment: p.81 of text (Macmillan) - CO_2 fire extinguishers and bubbles of CO_2

5th Grade

Process Concepts

1. Controlled experiment on interpretive level.
2. Texts on inference and prediction. (Recognize creativity)

I. Inference

1. An inference is a statement which attempts to explain an observed event in terms of known evidence.
2. Hypotheses are inferences in the process of experimentation.
3. The amount of confidence in the truth of an inference is based on the quality of the evidence.
4. Some ways in which inferences can be tested or checked are by further observation, referring to authority, or by experimenting.

II. What the student can do with an inference

1. Recognize inferences.
2. Distinguish between an inference and an observation.
3. Make one or more inferences based on observations and tell how evidence supports the inferences.
4. Recognize inferences supported by strong evidence and inferences supported by weak evidence.
5. Judge which of several inferences is best supported by evidence.
6. Be able to state hypotheses (inferences) in a form suitable for experimentation.

(3) Measuring Forces with Springs p. 233
Activity 1
Activity 2
Activity 3
Activity 6
Appraisal

(4) Linear Measurements and Estimations p. 305
All activities

(5) Description and representations of forces p. 377
All activities

(6) Measuring Rate of Change p. 509
Activity 1
Activity 2
Activity 4

Collect data that lends itself to graphing.

V. Controlled Experiments on the Interpretation Level

1. The problem should be in a simple, clear, concise statement of what one plans to do and should be suitable to the understanding of students at this level.

    a. The problem
    b. Hypothesis (Inference)
    c. Experiment (Describe)

        What are variables?
        What are constants?

    d. Conclusions (Interpretation)

2. Have stories of experiments, some of which are controlled and some of which are not.

    a. Which ones are controlled?
    b. What are the variables?

3. Teacher planned and set up controlled experiment and have children do it.

    a. What were the variables?
    b. Why was it a controlled experiment?

    (Plan for small groups. Get as many as possible involved)

4. Controlled Experiments

    a. Effect of intensity of light on plant growth. Place identical plants under conditions in which light intensity is deliberately varied from zero (darkness) to very intense light, while everything else is kept the same.

    b. Bread mold. See text, p. 33

    c. AAAS Book 5, p. 717: Falling Objects. (May also use marbles with: oil, water, syrup

    d. Beading of Water Colums. Kitchen Physics, p. 15 (may also be used for prediction)

    e. Surface Tension of Different Liquids. Use liquids--water, oil, alcohol, sugar water, salt water, etc. Fill jar with water. Heap with medicine dropper. Drop in paper clips. (Predict number of paper clips to be dropped before overflow.) Drop about inch in height, vertically.

    f. Crystal Growing. Description in Investigating Science with Children, Vol. II, p. 20., National Teachers Association.

For growth of a single crystal filter supersaturated solution to get seed crystal. Slip knot thread around seed and suspend in solution.

Variables: 1. Substances--sugar, crystal, alum crystal, salt crystal.
2. Temperature at which kept.
3. Covered or uncovered.
4. Kinds of water--tap or distilled.

Look for: Size and perfection of the crystal.

g. Make a coil by wrapping about a dozen turns of insulated wire around three fingers. Connect ends to galvanometer. Push bar magnet in and out.

Variables: 1. More or few turns of wire.
2. Magnets of different strengths.
3. Speed at which passed through coil.

Mechanical to electrical energy and predict what will happen because of variables.

h. (Diagram of candles under jars). Use jars (gallon, quart, pint, half pint, or some other similar gradation). Measure the length of time the candle burns.

Could we predict how long it would take to suffocate a candle in larger jars?

Before using the present text for science (it may be used for health and safety) it is suggested that the following exercises be used to teach the process of inference.

AAAS Book 4, p. 481, No. 3: Observations and Inferences Use of the term.
p. 571, No. 7: Influences in Familiar Situations
p. 493, No. 4: The Displacement of Water by a Gas

AAAS Book 5, p. 745, No.11: Inferring Shapes of Cut Things
p. 651, No. 9: Inference of Patterns Through Use of Electric Circuits

Continental Press - 5^1 Level: Lesson 6
Lesson 7

Continental Press - 4^2 Level: Lesson 20
Lesson 21
Lesson 22

III. Prediction

1. In Science some events in nature occur with regularity, as for example, metamorphosis of the butterfly. By the same token a study of events that have already happened sometimes makes it possible to foretell events in the future. This is called prediction.

2. Some predictions can be made with a high degree of confidence because the information being used is reliable, precise, and the event occurs with somewhat definite regularity.

3. Some predictions are not so valid, even though the information being used is reliable and precise, other factors may enter in to distort the regularity of events.

4. Predictions are also invalid if they are based on superstition. Example: "Dipper upside down predicts rain."

IV. What the student can do with Prediction

1. Temperature readings for month of September 1950-1960. Predict what temperature will be for this month next year.

2. Growth rate from cumulatives for each student. Graph it and predict probable growth rate for this year.

3. Do the same with weight.

The following exercise can be used in instruction of prediction:

AAAS Book 4, p. 527, No. 3: Prediction of a Suffocation of a Candle
Book 5, p. 669, No. 5: Interpreting Field of Vision Using Graphs
p. 681, No. 7: Prediction in Various Physical Systems.

PRECEDING PAGES MISSING

7' AAAS Space/Time 4 - Activity 3

(a) Some will understand that in facing a partner, your right hand is on the side of the left hand of the partner.

8' Suggestions for further development with individual children.

(a) Turn off the light switch to the right.
(b) Hop your right foot.
(c) Touch the floor with your left hand.
(d) Tap the floor with your right toe, now with your left toe.
(e) Stoop down
(f) Stretch up
(g) B end forward
(h) Bend backward
(i) Walk forward, now turn and walk in the opposite direction.

II. Content Concepts.

A. Living Things

1. Living things are all around us.

a. Activities. Children bring in many specimens of nature early in the fall. We go to see pets in the neighborhood, take a farm trip, and some live pets are brought into the kindergarten. During the year much will be learned about plants and animals, all living things. Concepts of the large number of things that are in the plant or animal category will be strengthened.

b. Problem 1. To test concept of living and nonliving things. A good exercise in the fall would be: Arrange the fall nature specimens that the children bring on a long table. Call no attention to the fact that they are living things until later. Some pretty stones will undoubtedly be brought in.

Question 1. Most of the things on the table have been growing and changing as they were growing. Point to something that has not been growing and has not changed. Are the rocks living things?

Question 2. As I point to different things on the table raise your hand if I point to living things, put it down if I point to nonliving things.

c. Problem 2. To test recognition of sounds of living and nonliving things.

Question 1. Listen to these sounds. Stand up if the

SCIENCE - Kindergarten

BASIC CONCEPTS RELATING TO SCIENCE TEACHING (Teacher Concepts)

I. Science is a special process by which we try to find the answers to questions.

- A. Childrens' natural curiosity impels them to wonder, and to search for explanations.
- B. Children seek reasons for the things they observe and try to find out if the explanation works.
- C. Science involves not only the processes used in finding out but also ideas which come from using these processes.

II. Science is a body of classified knowledge.

- A. Children learn to classify knowledge and to notice interrelationships fosters orderliness in using information in other situations.
- B. Children observe and record these observations to help them discover similarities and differences which lead to classification of knowledge.

III. Science concepts increase in complexity as children reach certain levels of experience.

- A. Children begin to wonder about things shortly after birth.
- B. Preschool children experiment and draw many conclusions of their own.
- C. The kindergarten teacher leads out from a varied background.
  1. For some children, an awareness needs to be sparked.
  2. For many, appreciation and attitudes are dormant.
  3. For all, a sense of orderliness and application need to be initiated.
- D. The kindergarten teacher keeps in mind what can best be developed in successive levels.
  1. All questions should be answered according to the understanding of the child.
  2. Childrens' interest and attention vary.
  3. More involved material and information on the subject should be saved for when it can be comprehended and used to better advantage.

E. Individual differences should be considered.

1. Children differ in background of information, awareness of natural forces, appreciations, mental capacity to learn.

2. Provision should be made for those more or less able to proceed in science activities. More advanced children may bring information to the group and perform simple experiments for the group to observe.

3. Children needing special help could at times be taken in separate groups to foster understanding.

IV. Information which is factual today may, in the light of new evidence, change as time goes on.

A. Some facts will remain static.

B. Other understandings will change.

C. Children can be helped to expect change.

PROCESS AND CONTENT CONCEPTS (Teacher Concepts)

Two types of concepts are included in the elementary school science program. They are the process concepts and the content concepts.

I. Process Concepts

In this study the work of the American Association for the Advancement of Science, Part one, will be considered. This might give a further dimension to the teaching of science on the kindergarten level. The AAAS material is published in the second experimental form. Some of it might be tried out on the kindergarten level. Suggestions for this are given later in the outline.

The AAAS presents "A Process Approach" in contrast to the "Content Approach". The process method enables children to use the methods of science in addition to learning about science. It includes what people do to find the answers they seek, rather than the mere memorizing of facts or information. In this respect this material is in agreement with kindergarten teachers' techniques in presenting material to children. The process approach is the most natural approach to learning especially at this level.

A. Observation (Development of)

1. The ability to observe and to classify can be developed.

2. Observation is an important part of a true scientific approach.

3. The child learns the value of using all of the five senses to come to a conclusion.

4. The usual and the unusual are identified.

5. Skill in observing and the ability to identify will be useful to the child as he acquires greater depth of understanding.

6. Children learn to make observations objectively, without emotional bias.

7. Children learn to repeat observations many times when necessary.

8. Children learn to check their own observations and respect those made by others.

9. Children learn to report only those things actually seen or perceived by one of the other senses.

B. Space/Time. Children learn to make careful observations of objects.

1. Children practice spacial discrimations of shape, angle, distance, and direction so the skill becomes both precise and comprehensive.

2. See examples of AAAS activities herewith attached:

   1' Observation 1 - Perception of Color

   2' Space/Time 4 - Direction

3. After process concepts are developed they will be used to reinforce the learning of the content concepts.

II. Content Concepts

The content material in kindergarten science centers around large concepts. Conceptual teaching is important to a meaningful understanding of science and is a means of coordinating incidental and fragmented learning. Through the concept comes meaning which the child will carry with him to help him in his thinking in many situations.

Large concepts such as matter, energy, and living things will be developed.

A. Living Things

1. Living things are all around us.

2. All living things are either of plant or animal life.

3. Plants are of many varieties and uses. (Use: Manitowoc Kindergarten Science Guide "Plants and Animals".)

    a. Kinds of plants may be classified.

    b. Plants grow from seeds, bulbs, or cuttings.

    c. Plants need light, water and soil.

    d. Plants disperse their seeds in different ways.

    e. Plants continue to propagate according to their kind.

    f. Some plants will become extinct unless we are careful to conserve them.

    g. Plants provide us with food.

    h. Plants provide us with beauty and enjoyment.

    i. Many plants need careful cultivation.

    j. Other plants grow by themselves without cultivation.

    k. Plants depend on weather and climate.

    l. Some plants are undesirable--poisonous plants, weeds.

    m. Some plants grow indoors.

4. Animals are identified by certain characteristics.

    a. Animals can be classified.

    B. Many animals help people.

    c. Some animals are enemies of people.

    d. Some animals do not depend on people for their care.

    e. Animals continue to propagate according to their kind.

    f. Animals live in certain identifiable homes.

    g. Baby animals are usually cared for and protected by the mother animal.

    h. Animals change activities during the seasons.

    i. People also change their habits and activities during the seasons.

General Strategy for Use of Concepts on Anthropology

It would seem appropriate to introduce the concepts of anthropology after completing Unit 1.

After each definition or factor on the material on anthropology we have included some examples. The examples were given for the information of the teacher. The amount of material on anthropology that would be distributed to the students would vary according to the teaching technique to be used.

One example would be to give the students a copy of the entire material on anthropology, excluding the examples. The children then would fill in their own examples: as they are introduced and discussed. As the ideas are discussed the children would make any notations or additions on their papers. The students then would each have a copy of the ideas of anthropology along with added examples, definitions, and comments to study and refer to during the year.

Another possibility would be to give the students a skeleton outline, excluding definitions, examples, and related sub-points. The students then would complete the outline as the material is presented and discussed.

A few questions have been included to be used during the presentation. It is hoped that the teachers will try to capitalize on the students' previously learned knowledge by asking them further questions and by using various techniques during the presentation which will relate these basic concepts of anthropology to related learned ideas from previous grades.

Specific Areas in Unit 2 Which Lend Themselves to Asking Questions Which Reinforce the Ideas of Anthropology Previously Introduced.

What evidences do you find in the pictures in Unit 2 that man has developed more culturally than biologically?
To what extent did the cave men live in groups?
What cultural changes encouraged man to better organize their groups?
What learned patterns of behavior did man develop as the need for living in groups increased?
What organizations did man develop because he lived in groups?
Relate the idea that culture is learned patterns of behavior to the following:

1. Fire
2. Food preparation
3. Homes
4. Protection
5. Transportation
6. Hunting
7. Farming
8. Government

It is hoped that after the ideas of anthropology have been introduced and reinforced in Unit 2 that the children will be able to relate and apply some of the generalizations of culture to Unit 3 on Egypt.

After reading the story "Life in the City of Thebes (pages 47-52) have the students pick out the patterns of behavior that seem to be culturally oriented. (Values, beliefs, skills, and etc.)
Why was Egypt considered the "cradle of Civilization or culture"?
In what way is the behavior of Egyptian people limited by physical enviroment?

___ Is the idea of hieroglyphics an example of cultural heritage, acculturation, or innovation?

___ As man progressed why was there a greater need for cooperation?

___ Find examples of cultural heritage, cultural transmission, acculturation, and cultural innovation.

___ After the examples of cultural (innovation have been identified have the students select the innovation that they feel contributed the most to present day man, along with their reasons.

___ Even though Egypt was the cradle of civilization, there are people still living in mud huts and traveling by camel. (See pictures p. 52-56) What ideas of culture would explain this?

___ What effects did the Egyptian traders have on the Egyptian culture?

___ Ancient Egypt would be classified as a dynamic culture, while present day Egypt would be a static culture. Explain.

Questions or ideas that seem to apply to the subject matter that follows the unit on Egypt.

___ Find examples of how the physical environment affects the lives of the people.

___ Comparison of cultures in regards to any of the following--beliefs, skills, customs, and etc. On the interpretation the questions would ask whether concepts are related, unrelated, similar, or different.

___ A related question would be -- How would a person of one culture feel and react if he was placed in another culture?

___ After the completion of each unit have the students pick out the ideas of culture that have been transmitted to our present day culture.

Trace the steps of a cultural innovation being studied to the present day. (Special Report)

___ An evaluation question related to this would involve having the students indicate the contribution that was most valuable and why?

___ Whenever any basic idea of a culture is studied, have the students tell if it is an example of cultural heritage, acculturation, or innovation.

___ Is the culture being studied an example of the dynamic or static culture? Why?

___ Is there any evidence of cultural lag or resistance to cultural change?

___ Look for evidences of cultural diversity in the culture being studied.

___ What steps would you take in trying to improve the static nature of a culture?

___ Whenever any of the cultures tend to conflict with or contradict our beliefs, customs, norms, and etc., bring out the ideas of ethnocentrism and cultural bias.

Examples -- Religious belief, means of education, types of government, Sparta teaching that stealing is right, as long as you don't get caught, or the Vikings being cheered when they returned from the plundering and conquests.

___ Make a list of questions you would ask to find out whether a culture is a dynamic or static.

___ What generalizations relating to culture can you make about a certain group of people?

___ After studying examples of dynamic and static cultures, list some of the elements that seem to be present in the dynamic cultures or the static cultures.

___ Ask whether a concept is good or bad and why.

Example -- Is cultural change good?

___ Why do some cultures tend to be more advanced than others?
___ What seems to be the most important factor that influenced the human behavior of the culture being studied?
___ Which is better, a dynamic or static culture?
___ Is change good?
___ Can a culture be too dynamic? Why?
___ Describe the change that took place during a certain period of time. (Example -- Golden Age of Greece, Days of Roman Peace, Feudal Times)
___ Why did Europe change so slowly during the early Middle Ages, and so rapidly during the Renaissance?
___ Discuss how a subculture could develop into a separate culture.
___ Write a story about the change in a family's life whenever their culture came in contact with another culture.
___ Write a story about the reactions of a person whenever he was introduced to any of the new innovations or cultural changes.
___ The students could take a make-believe trip to any of the cultures studied. They could then write a letter to a friend in Manitowoc telling about their day's activities.

Suggestions for the Use of the Material on Variations in Government

Throughout the sixth grade many variations of government are studied. The material on variations in government is provided as a means of looking at the government in the light of the concepts of the scope of power and who has the power.

The basic needs for government are introduced in the second chapter on page 28 with chapter three introducing the concepts of scope of power and who has the power when it discusses Egypt's pharaohs. At this time it seems appropriate to introduce the material on variations in government. The material may be mimeographed in entirety or left in as skeleton form as the teacher desires.

Questions or ideas that seem to apply to the material being introduced.

___ Where does our government fit?
___ After the material has been presented have the students match definitions with terms.
___ Examples of mythical government would be presented and the students would be asked to classify them according to scope or power and who has the power.
___ By relating scope of power and who has the power the following questions could be asked:
    ___ Is is possible to have a totalitarian democracy?
    ___ Is it possible to have a totalitarian aristocracy?
    ___ Is it possible to have a laissez-faire monarchy?
    ___ Is it possible to have a aristocratic anarchy?
    ___ Is it possible to have a limited dictatorship?
    (Anything with anarchy is not possible. The rest are all possible)

Questions or ideas based on the concepts of variation in government that seem to apply to units throughout the year.

___ What kind of government does the country have in regards to who has the power?
___ What kind of government does the country have in regards to the scope of power?
___ Did the government fit their general culture? Why?
___ Comparison of governments according to who has the power and the scope of power.
___ What affect did a certain change in government have on the lives of the people?
___ Many times during the year we study where a certain type of government in the country had failed. What form of government do you feel would the country need to help bring about a change for the better?
___ Is there any relationship between the variations of government and cultural change?
___ Throughout the history of culture what has been the general trend in the scope of power and who has the power. Is this trend desirable? (End of the year question)
___ Many of these ideas of variations in government can be used very effectively in current events and the weekly news publications that is used in the classroom.

EXAMPLES: Most of our language, government, and religion is borrowed.

b. Cultural change accelerates as new developments in transportation and communication lead to more cultural contacts and interactions.

EXAMPLES: As a result of World War II, Europe started using our idea of supermarkets; American movies have influenced European life.

2. Innovation or invention is the combining of cultural elements (material or non-material) in a new pattern.

    a. Cultural base is all that a culture has accumulated from its cultural heritage; this determines the volume and nature of inventions.

    b. The rate of cultural change accelerates as the cultural base expands.

    c. Key or basic inventions in an area of cultural change may trigger a spurt of related inventions.

    EXAMPLES: Transistor, automobile, pop art, literature.

    d. The same or similar innovations often occur about the same time in different cultures.

    EXAMPLES: Steam engine, atom bomb, Darwin's theory of evolution, etc.

B. Cultures change at different rates.

1. A dynamic culture is one in which change is the most outstanding characteristic.

    a. It has effective communication.

    b. Many cultural contacts.

    c. Expanding cultural base.

2. A static culture is a culture where there is little change over the centuries.

    a. Very poor communication

    b. Isolated with very little cultural contacts

    c. Small cultural base

C. Related factors to cultural change.

1. Cultural lag occurs when one part of culture changes faster than dependent parts, causing maladjustments.

   EXAMPLES: Automation-unemployment, unprepared to cope with new ideas; air travel.

2. Resistance to cultural change

   a. All men in all societies tend to cling to traditional customs and beliefs as a means of keeping their societies orderly.

   b. Cultural traits tend to persist beyond the time of their usefulness.

      EXAMPLES: Walking on the street side of a woman; wearing cowboy boots; etc.

   c. Ethnocentrism and cultural bias tend to resist acculturation.

      EXAMPLES: People thinking that what they are doing is best, sometimes hesitate to change.

3. Material culture tends to change more rapidly than non-material culture.

   EXAMPLES: Ideas of transportation change readily, but religious beliefs and customs change slowly.

4. The better a new cultural trait fits into existing patterns, the more likely it is that it will be adopted.

Powerful Concepts on Government

All cultures have systems of laws to promote order, and as the society becomes more complex and technology more advanced, there is a need for the development of more laws and larger governmental units. Government is necessary for the survival of all cultures, but its form may vary from culture to culture. Governments themselves vary by the scope of power and by whom has the power.

I. Classification of government by the scope of power.

A. Government has no power - anarchy

EXAMPLE: International relations

B. Government has some power - limited government

1. Laissey-faire - Its function is to protect and keep order.
2. Welfare state - It protects and keeps order, but it also provides welfare and services to the people.
3. Civil liberties - They are certain freedoms the people of a limited government have that may not be taken away.

EXAMPLES: Freedom of religion, occupation, speech, etc.

C. Government has all power - totalitarian government

EXAMPLES: USSR, Cuba, etc.

no power	some power	all power
anarchy	(laissez-faire welfare state) Limited government	totalitarian government

II. Classification of government by who has the power.

A. Rule by one

1. Monarchy - rule by a monarch (supreme ruler; a sovereign; a king, queen or emperor)

2. Dictatorship - rule by a dictator (a ruler, often self-appointed, who is not a king or queen but has the power of an absolute monarch)

B. Rule by some

1. Aristocracy - rule by the noble, upper, or privileged class usually benefiting themselves.

2. Oligarchy - rule by a few people with the general good of all in mind.

C. Rule by all - Popular sovereignty means all the people have the power to govern.

1. Republic - rule by the people having the right to vote, but is exercised by representatives elected by and responsible to the voter.

2. Democracy - rule by the people in which the highest power is held by the people, as in a republic.

one	some	majority	all
monarchy dictatorship	aristocracy Oligarchy		democracy republic

PRECEDING PAGE MISSING

4. To develop an understanding of different allocation in different production units, ask the following questions:

   A. How much land is used?

   B. How much labor is used?

   C. How much capital is used?

   Use the following industries for the above questions:

   1. Furniture factory
   2. Steel mill
   3. Cotton plantation
   4. Dairy farm
   5. Some service industry
   6. Coal mine

   From students own experience

   From this evidence what generalization can you draw? (Different productive units use different allocation of resources) Principle #2

5. Ask these interpretation questions to help students understand efficiency in use of factors of production:

   A. Steel could be produced by using backyard smelters and a lot of labor. Why isn't it produced that way?

   B. Dairy farmer could operate without tractor. Why doesn't he?

   C. Why are coal mines and cotton farms using more capital (machines) and less labor?

   Continue series of questions based on industries mentioned in IV.

   From this evidence what generalization can you draw? (Most efficient allocation of resource is best.) Principle #4

6. Explain Principle #1 -- Least comparative disadvantage.

   List all 4 principles on board. Which one of these principles includes the other 3? Should see that Principle #1 is most important and really include all 3 others.

7. In each successive unit this could be developed on interpretation level.

   What is allocation of resources in this unit?

   Application level - Give students and teacher - prepared chart on unit before study is begun. See I.

   What kinds of production would be likely to take place in this region?

   Evaluation level - After study of a region or industry.

   Is this an example of good or poor allocation of economic resources?

SOCIAL STUDIES IN SIXTH GRADE

Anthropology

(The following material on anthropology is included as a means of providing background material for the teacher in introducing this subject.)

Anthropology is a social science. It is a member of the same family of subjects as history, geography, political science, economics, social psychology, and sociology. It shares with its sibling fields two innate common traits--subject matter and method.

In subject matter, social science fields are all concerned with human events and relationships. History, for example, views human events and relationships through time. Geography views human relationships through space. Political science analyzes human relationships in government and politics. Economics deals with man's efforts in making a living. Social psychology is concerned with the influence of human groups and group behavior upon individual human behavior. Sociology analyzes human inter-relationships in social groups.

Anthropology, in subject matter, is literally "the science of man" (the word is derived from the Greek anthropos meaning "man and "logos" meaning "ordered logic.") It is concerned with any information which helps describe human characteristics. It has two major divisions, physical anthropology which deals with man's biological characteristics and evolution, and cultural anthropology which deals with man's ways of organizing group life and his socially learned patterns of behavior. It seeks to describe man as a culture-bearing animal.

In method, the social science fields all involve systematic, objective accumulation and organization of knowledge about mankind. They begin with careful observation and recording of data. They procede to Classification of data in a useful organization. They use inference and induction to formulate hypotheses about the observed, classified data. They use deduction and the scientific method to test their hypotheses.

Anthropology is outstanding among the social science fields for its careful and extensive observation and classification of data and for its discipline of thought in forming generalizations. It tends to gather data from three principle sources. Some anthropologists study the remains of preliterate humans and their culture. Others observe isolated present day cultures where they can more easily see the whole of a less complex cultural mechanism. Still others study the major modern civilizations. No matter which type of human experience the anthropologist observes, his purpose is not so much to describe the particular culture, but more to develop an understanding of what mankind in general is like.

Powerful Concepts from Anthropology

I. uman Evolution - man has evolved biologically and culturally over long periods of time.

A. Biological evolution - Many people believe that man has developed to his present form through the same processes of biological evolution by which animals have developed, and that the process of man's evolution has involved approximately one and one-half billion years. During this period, it is believed that a multitude of plant and animal forms have also evolved.

1. Fossil remains prove man attained essentially his present-day biological characteristics many thousands of years ago?

a. What are some of these characteristics? (The most important include a large brain, upright posture, manipulative hands, keen vision, and mouth and throat structures that make speech possible.)

b. Archeology is the study of extinct ancient civilizations from their remains. (page 19 has a workable definition of an archeologist)

2. Man's development since that time has been overwhelmingly cultural and very little biological. (Very few, if any physical changes, but many changes culturally)

3. Although man is identified with other living animals, he differs profoundly by means of his development of culture.

a. Culture is learned patters of behavior. (non-material and material)

b. Why haven't other animal progressed like man? (Because they lack a culture which is a product of man's exclusive capacity to comprehend and communicate by means of language, plus manipulative hands which enable him to use tools.)

c. Compare instincts to learned patterns of behavior.

EXAMPLE: A robin builds a nest instinctly, navigates instinctly, but a human has to learn how to build a home and travel.

B. Cultural evolution - man has changed by learning new ways and passing them from generations to generations. The only way cultural evolution is possible is through communication.

1. Cultural evolution occurs at different rates and in different direction where cultures are isolated.

EXAMPLES: We are more advanced than other countries because they may have been isolated. Africa, India, parts of Australia, South America are good examples to use when trying to find isolated cultures. A country may be isolated politically, geographically, socially, or by a language barrier, etc.

2. New ways or revolutions influence the rate of cultural evolution.

    a. Tool revolution - man starts to use tools, wood, stone, metal.

    b. Food revolution - man started to raise the food he needed.

    c. Industrial revolution - man becomes highly mechanized. (still happening)

II. Culture is learned patterns of behavior. It includes non-material knowledge, values, beliefs, skills and customs, and material objects, tools, homes, cars, furniture, and clothing.

A. "Culture" is often used interchangeably with the term "civilization".

1. Culture is learned in social groups.

EXAMPLE: Learning to speak a certain language.

2. Culture is broken down into individual traits.

EXAMPLES: Eating three times a day; wearing pants to kilts; living rural to urban.

3. All humans, even the most primitive, have culture which gives them superiority over animals.

EXAMPLES: Anything learned; fire, clubs, clothing, etc.

4. Man, who lacks instincts, developed culture because of his need to regulate group life and cope with the natural environment.

EXAMPLES: Transportation, homes, clothing, etc.

B. Cultural heritage - the man-made environment of tools (material part of culture) and customs (non-material part of culture) passed from one generation to the next.

1. Cultural heritage is the accumulation of all human experience and handiwork known to a society.

EXAMPLES: Progression of the wheel to the present car; our system of numbers; our language; our writing; etc.

2. No civilization has developed more than a small fraction of its cultural heritage.

C. Cultural transmission - the culture transmitted through generations by learning.

1. It may be transmitted through formal means (education).

EXAMPLES: Reading, math, science, social studies, English, etc.

2. It may be transmitted through informal means (imitation.)

   EXAMPLES: Language, what is right or wrong (values), family habits, etc.

D. Cultural continuity - Culture lasts longer than the life of any individual or group.

E. Cultural diversity - Though all cultures are somewhat similar in basic structure, there are differences among cultures in traits and patterns of behavior.

   EXAMPLES: All cultures have families, but the role of mother and father varies; most cultures have some religious beliefs, but often quite varied.

F. Ethnocentrism - Each society tends to regard its own culture as right and superior to all others.

G. Cultural bias - Man tends to form his opinions and attitudes from his own cultural viewpoint. (we judge people by what WE think is right and wrong).

H. Subculture - Within a whole culture there are subcultures that have noticeable differences.

   EXAMPLES: Different areas in the U.S. are different when it comes to pronunciations and other customs, such as dress, dances, songs, manners, etc.

III. Cultural influence on human behavior

A. Factors that do influence behavior.

1. Behavior is somewhat limited by biological inheritance.

   a. Temperament (reactions, emotions, physical types - masculine, feminine)

   b. Capacity to learn (intelligence, coordination)

2. Physical environment limits behavior.

   EXAMPLES: Growing crops above the Arctic Circle, or throwing snowballs in the Sahara.

3. Man has great capacity to adapt to various physical environments.

   EXAMPLES: Travelling in outer space, living in and from the ocean, etc.

4. Behavior is greatly influenced by cultural learning.

B. Parts of our behavior influenced by culture.

1. Values - (the value we place on democracy has been influenced by culture)

2. Beliefs - (Christianity, Islam, Judaism, etc.)

3. Norms

   a. Folkways - a custom you do because everyone else does.

      EXAMPLES: Using silverware; boys wear long trousers and girls wear skirts, etc.

   b. Mores - things you do because your culture says they are morally right.

      EXAMPLES: One wife; A Taboo is something that is judged wrong by the culture, belching, stealing, etc.

4. Skills

   EXAMPLES: How to read, ride a bike, playing baseball, care of the sick, etc.

5. Habits

   EXAMPLES: Smoking, combing your hair, brushing your teeth, etc.

6. Artifacts

   EXAMPLES: Knives, forks as compared to chop sticks; skyscrapers as compared to igloos.

C. Considerations in evaluation of other cultures.

1. Anthropologists have found no scientific basis to judge whether one culture is better than another.

2. What we may consider right in our culture may be wrong in another culture. (or vice versa)

   EXAMPLE: We think we should only have one wife, but other cultures believe in more than one wife and different religious beliefs.

IV. Cultural Change - No one is born with culture, but each person acquires the culture of his group as he lives and learns within it. Cultures change continuously at an ever accelerating rate. The rate of cultural change varies from one culture to another culture.

A. Cultures change through acculturation and innovation.

1. Acculturation is the borrowing from other cultures.

   a. All societies have borrowed vastly more of their cultures than they have invented.

G. Investments - takes place when money is used in building plants and equipment. Only business invests. When we buy a stock we merely transfer money.

profits go to capital
rent goes to land
wages go to labor

H. Income - money saved. Investments comes from savings money spent for consumption.

I. Savings - money put in banks, loan companies, stocks and bonds. Business borrows and invests it in capital.

*(Is hording or buying money a good idea or a bad idea? Why?)

J. Taxes - money paid to government for government consumption and investment (roads, bridges, etc.)

K. Government expenditure - consumption of goods and services by the government.

Example: armed forces
missile contracts to industry
schools

L. Future prospects - business invests money thinking in terms of what the market might be ten, fifteen or twenty years from now.

M. Friction - anything that retards commercialization; lack of transportation, communication and banking facilities will slow down specialization.

N. Primary industries - extractive industries
Natural resource industries

Example: lumbering
farming
mining

Secondary industries - manufacturing industries

Tertiary industries - services industries

Example: store owners
doctors, teachers
maids, sales
bus drivers

O. Division of labor - use of more than one laborer in the making of a product, with each specializing in a certain portion of the total job.

Exception: No division of labor - one room school.

P. Specialization - concentrating on a specific kind of job or part of a job.

Example: regional specialization - winter wheat belt

Q. Interdependence - in olden days and in primitive societies people supplied own needs. Today, because of specialization, we depend on others for almost all of our needs and wants.

R. Propensity to exchange -- tendency to exchange goods -- commercialism.

S. Money *(made necessary by specialization

Kinds - cash - coin or paper
checks
Indians used wampum

Functions - 1. means of exchange - can't take a refrigerator and buy a haircut
2. standard of deferred payments - allows us to go into debt and pay later
3. store of value - savings

T. Commercial production - goods produced for other people - not used by man who makes or raises it.

U. Subsistence production - person who raises or produces - uses what he raises or produces.

V. Region - A region is an area which is, within itself, alike in one or more particular ways and is different from the surrounding area. A region is thought of in terms of a specific idea or ideas and is alike only with respect to the idea or ideas.

Examples of regions: manufacturing region
hay and dairy region
corn region
hog region
Great Plains
desert region

The different kinds of regions are:

1. Single feature region - a region that has one distinct geographic idea. A line can be drawn around the area and it can be named.

Example: soybean region or mining region

2. Multiple-feature region - an area based on two or more geographic ideas

Example: climate region
Rainforest (high temperature
(high moisture
(more direct rays of sun

Tundra (cold temperature
(no large vegetation
(little or no growing season

3. Totality region - a geographic region thought of in terms of the entire content of geographical elements in an area.

    Examples: Midwest
    Banana Republics
    New England States
    Southern States

4. Nodal region - a region which is tied to a center or focal point such as a city

    Example: Manitowoc as focus - nodal region of Manitowoc would be the trade area or hinterland which is served by the city and connected to it by lines of communication and transportation.

    Examples - Chicago, Boston, Birmingham, St. Louis, Atlanta, Mexico City, Manaus, Buenos Aires, Salt Lake City, Portland, Denver, etc.

PLANS FOR TEACHING ALLOCATION
OF FACTORS OF PRODUCTION

1. In studying 3 regions (Northeast, South and Midwest) ask these interpretation questions about each region:

   A. What are the main features of climate? (precipitation
   (growing season
   (temperature range
   during growing season

   B. What are the main physical features?

   C. What are the main types of production? (primary
   (secondary
   (tertiary

   D. What are the main products of production?

   E. What are the kinds and amounts of land?

   F. What are the kinds and amounts of labor? (skilled rural
   (unskilled urban

   G. What are the kinds and amounts of capital?

      1. Capital in small farms or large farms?)may help
      2. Specialized or unspecialized agriculture?)but aren't
)necessary
      3. Small factories or large factories?)

Possibilities

1. Compile answers to questions on large wall chart or display board.
2. Each student makes own chart. Charts to be filled in (cumulative) as areas are studied.

	Northeast	South	Midwest
A. Climate feature			
B. Physical features			
C. Types of products			
D.			
E.			
F.			

2. After completing chart for the 3 regions, have students compare uses of factors of production in the 3 regions by asking these interpretation questions:

   A. Which region uses most land?

   B. Which region ranks second in use of land?

   C. Which region uses least land?

   Do same for factors of labor and capital.

   List this on chart or board -- this is to be done in a class discussion period.

Use of Land	Use of Labor	Use of Capital
South		
Midwest		
Northeast		

   From this evidence what conclusion or generalization can you draw about production in the different regions? (Different production uses different combination of land, labor and capital)

3. Ask these interpretation questions to help students visualize relationship between supply and allocation of factors of production in the 3 regions (Principle 3 under Allocation of Economic Resources)

   A. Why does the south use a lot of land in production?

   B. Why doesn't the Northeast use a lot of land in production?

   C. Why does the Northeast use a lot of capital?

   D. Why does the Northeast use a lot of skilled labor in production?

   E. Why does the Midwest use a lot of land in production?

   Continue this line of questioning in terms of use of factors of production in the 3 regions.

   What generalization does this evidence suggest to you about the allocation of economic resources that a given region will use in production? (Each region maximizes cheapest--most in supply--factor of production). Principle #3.

POWERFUL CONCEPTS FROM ECONOMICS AND GEOGRAPHY

Economics is the study of the way people make a living and the plan for owning things.

I. Capitalism - our national economic system - every country must have one.

Five characteristics of Capitalism

A. Free Enterprise - private citizens have the right to start a business and to operate it as they see fit. Each person chooses his own vocation.

Exceptions - school system
T.V.A.
Manitowoc Public Utilities
can't make fireworks
colored oleo in Wisconsin
can't buy and sell drugs
tavern business

B. Private Ownership - ownership of capital and consumer goods is in the hands of private citizens rather than in the hands of the government. This includes the right to bequeath money and inherit money.

Exceptions - can't own atomic bombs
public schools
streets
highways
lakes
rivers
sewer system

C. Profit - is the amount of business, production, or money which has been left over after all present expenses and anticipated expenses (plant expansion, replacement of tools, taxes, etc.) have been accounted for.

D. Competitition - when two or more producers try to outdo each other in a free market.

Factors of competition

1. When two or more are making the same product - Ford and General Motors.

2. There must be a real rivalry - the companies don't get together to agree on prices they will charge.

3. Price system - they try to sell the same quality product at a cheaper price.

4. Free market - consumer should be able to pick who he wants to buy from.

Exceptions - telephone and electricity are not on a price system. They are a government-controlled monopoly.

E. Protection from destitution - nobody is permitted to starve or be without clothing or shelter.

II. Economic Decisions - Man can't satisfy all of his wants and needs because the factors of production (land, labor and capital) are limited. Therefore, he must make choices as to what is to be produced. Because his wants and needs outweight production there will be scarcity. The "real cost" of a product is thus the alternatives sacrificed in producing it. If we buy one thing we can't buy something else because our money has been spent. Scarcity is common to all societies because our desires always exceed our production.

*(Keep in mind, however, that in poor times things aren't sold (1929-1933) not because we lack desires but because we lack producing power.)

Decisions *(the first three questions are microeconomics and are decided upon in our economy by decisions of individual private firms.)

1. What to produce?

   A. Shall we produce consumer goods and services? Consumer goods are things used (consumed) in daily life: food, homes, cars, clothing, etc. (*It is not just consumer goods but which consumer goods.)

   B. Shall we produce capital goods? Capital goods are the "tools" of production - stores, machines and manufacturing equipment. Wealth used to produce wealth.

2. How to produce?

   Various combinations: Use much labor, little land and capital? Use little labor and capital and much land?

   Will there be private ownership or government ownership?

3. How is the production to be distributed? Who gets how much of what is produced? If you work harder will you get more?

   A. Mass production

   B. Desire to be efficient by use of competition, merit pay, rewards, etc.

   C. Technological advances.

   *(Efficient transportation, communication and exchange facilities that permit the principle of comparative advantage to operate - permit regional specialization or the adjustment of types of production to area where each type can take place most efficiently.)

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* Comments of economist consultant.

*(The relationship here is not directly to resource allocation but rather to economics of scale. Economics do not always increase with scale. There are certain industries (auto industry for example) that utilize mass production techniques (assembly lines, etc.) that do lend themselves to economics of scale.)

4. Productivity or standard of living as related to allocation.

A. The willingness of people to buy a product (increased demand) permits large-scale efficient methods of production. This lowers the cost of production which can be passed on to the consumer to attract still more purchases. The manufacturer can get a great number of products in a short period of time. If worked out efficiently the production per person is high and this raises the standard of living. This isn't true of all industries - garment industry.

B. Efficient allocation of resources = maximum productivity = high standard of living.

C. In competitive economy there is a forced efficient allocation of natural resources. If you aren't efficient, you can't compete, and you go out of business.

Example - Russia doesn't need to be efficient because government controls allocation of resources.

*(Even in U.S.S.R. they need to be efficient but this system does not operate automatically and is rather discretionary. Economically inefficient enterprise can persist for long periods.)

III. Allocation of Economic Resources - Allocation of economic resources means deciding how the resources are going to be used in production. (i.e. the amounts of each in combinations). The resources are allocated by the law of supply and demand which determines their price. Other things being equal, the use of the cheapest resource (land, labor or capital) will be maximized and the use of expensive resources will be minimized.
Supply low - high price; supply high - low price.

*(The supply of an economic resource is reflected in its price. A scarce resource will be high priced, an abundant resource - low priced. In combining the resources it is good business to use as little as possible of the expensive one and as much as possible of the cheap one. As these resource costs vary from place to place their relative combinations in production will vary from place to place. The production of different things require different resource combinations; hence, we have regions of specialization in production.)

1. Principle of the greatest comparative advantage or least comparative disadvantage --

   The cost of land, labor, and capital will influence how the resources are to be used.

   Examples: Japan - lots of labor, little land and capital.
   Canada - lots of land, little labor and could get capital from U.S.
   Great Plains - lots of land, less capital and labor.

   Different occupations use different combinations of land, labor and capital.

2. Differences between productive units (doctor's office vs. aluminum goods) in one place as related to their requirements. Certain crops are produced in a place because the climate is best suited for them. Certain types of manufacturing requires much labor and, therefore, will be established around centers of population or skill.

   Example: Garment industry in New York

3. Differences between regions or nations as related to supply

   The allocation of economic resources is partially determined by physical factors, but mostly by economic factors.

   *(Actually, physical factors are an economic factor, but just one - the land facton).

   Examples: Canada - concentrates on industries which maximizes land factor. Short of labor but lots of land and resources. We get pulp, paper, wheat, iron ore from Canada. Production will reflect use of much land and capital and little labor.

   Mexico - little capital, therefore, many products are made by hand. We buy handicraft items from Mexico. South American countries usually use foreign capital.

   Wisconsin - (1) No steel industry because poor grade iron and no coal
   (2) Doesn't grow citrus fruits because they can be grown cheaper elsewhere.

4. Efficient and inefficient allocation of resources.

   Efficiency means that a society tries to make its resources go as far as possible, to get the most (output) from the least (resources).

   Ways of increasing efficiency

   (a) Through specialization
   (b) Better use of capital

IV. Static Absolute Concepts *(This is my own term and has meaning largely only in the context of my outline.)

Static absolute concepts are economic ideas that apply to all people, at all times, in all places. Economic principles which are not changing and are not related to anything else.

A. Free goods - anything we don't have to pay for.

Examples: air
sunshine
rainfall (to farmer)
sand (from beach)

The more advanced a society becomes the less free goods are available.

Examples - jungle may get free food, clothing, shelter, etc.

B. Economic goods - anything that must be purchased.

C. Services - tertiary industries such as doctor, dentist, teacher, barber, lawyer, bus drivers, sales

D. Economic resources or factors of production

Land - all material things that are of economic value in production and whose value has not been raised by man's efforts.

Examples: land, timber, minerals, seeds, navigable streams, fish, water power, etc.

Labor - workers and management.
factory workers, doctors, president of company, etc.

Capital - buildings and tools.
money isn't capital until it buys production equipment.

E. Production - act or process of producing economic goods or services. Combining of land, labor and capital.

Teaching - land--acreage of schoolyard
labor--teacher, principal, custodian
capital--building and equipment

Dentistry - land--acreage building is on
labor--his work
capital--office equipment

F. Consumption - using up of economic goods by people in the act of their everyday living.

PRECEDING PAGE MISSING

4. In each region what would happen to the economy and some of the other factors if one factor would change?

5. What would happen to specialization if the transportation changed?

6. What would happen to specialization if one of the other factors changed?

7. Which economy is better: subsistence or commercial?

8. (Describe economic factors of either a fictional region or real region) Tell which economy is present.

9. Make up a series of questions you could use to find out what type of economy exists in a certain region.

Concept VI

Commercial economy is one in which goods are produced for sale to other people in other areas in exchange for good which the others produce.

- a. High Standard of Living
- b. Factors of Production - more capital, technology, government.
- c. Transportation and Communication - modern
- d. Kind of energy - mechanical
- e. Money - bank, credit, paper
- f. Market - large market for goods
- g. Specialization - division of labor, regional specialization

Strategy For Concept VI

After explaining a chart on commercial and subsistence economy the following questions may be asked:

1. What type of economy does this region have? Support your answer..

2. How do you think a community with subsistence economy could become one of commercial economy?

3. This economy is the best possible one for this region. True or false. Give reasons to support your choice.

4. In each region what would happen to the economy and to some of the other factors if one factor would change?

5. What would happen to specialization if the transportation changed?

6. What would happen to specialization if one of the other factors changed?

7. Which economy is better, subsistence or commercial? Why?

8. Describe either a fictional region or real region's economy factors. Ask pupils to tell which economy is present.

9. Make up a series of questions you could use to find out what type of economy exists in a certain region.

Concept VII

The two important functions of government are to serve and to regulate in the public interest.

a. It is the business of the government to do for the people what they cannot do as well for themselves.

b. The responsibilities are:
  - (a) external security
  - (b) internal order
  - (c) justice
  - (d) services essential to the general welfare
  - (e) under democracy, freedom

Strategy For Concept VII

1. Why do we need rules?
   - a. Family
   - b. School
   - c. City
2. Who makes rules?
   - a. Family
   - b. School
   - C. City
   - d. State
3. What is government?
   (Government is the group of people which makes and enforces rules of a city, state, nation.)
4. What is a democracy?
   (Democracy is a government in which the people make the rules.)
5. How do the people make the rules in a democracy?
   (Elect representatives to make rules for us.) Explain why representatives are elected.
6. Why do we have to elect representatives?
7. For whom does the representative work?
8. In what city was Wisconsin's first capitol? What type of building was it?
9. Why do you think this place was chosen the first capitol?
10. In what city was Wisconsin's second capitol? Why do you think this location was chosen?
11. Why did Wisconsin need a third capitol building? Why did the location remain the same?
12. What happened to the third capitol building?
13. How old is our present capitol building?
14. What made the capitol building so costly?
15. Where do you think the money came from for the building of the capitol?

16. Thw governor is speaking to our school assembly. Write questions you would like to ask him.

17. You are planning a trip to Madison to visit our capitol building. Which part of it would be most interesting to you and why?

18. Our state capitol is a few inches shorter than our National capitol. Do you think this was the correct thing for our state to do? State reasons for your answer.

19. What do the representatives do for the people? (The government does for the people what we cannot do well for ourselves.)

20. What kind of protection does government give us?
    a. External protection - protection against other countries
    b. Internal protection -
        1. Property
        2. Life
        3. Rights - liberties

21. What services does government provide for us?
    a. protection
    b. education
    c. health and sanitation
    d. welfare -- taking care of people who can't take care of themselves.

22. For what kind of people would these be?
    a. Poor
    b. Aged
    c. Unemployed
    d. Blind
    e. Crippled and disabled
    f. Orphan children
    g. Mentally and physically ill

23. Does the State Health Department give protection or services or both? Which kind?

24. Take examples from 89-90 and use question no. 12 to develop each.
    a. Point Beach State Forest
    b. City dump
    c. Water Disposal Plant
    d. City Nurse
    e. Truant Officer

25. How does the government provide protection and welfare? (The government does three things: makes laws, enforces laws, judges whether people have broken laws.)

26. Who makes the rules? (Legislator -- senate, assembly)
    Who makes the rules in the family?
    Who makes the rules in the school?
    Who makes the rules in the community?
    Who makes the rules in the state?

27. Who applies the rules in the family?
    Who applies the rules in the school?
    Who applies the rules in the community?
    Who applies the rules in the state?

28. Who judges the rules in the family?
    Who judges the rules in the school?
    Who judges the rules in the community?
    Who judges the rules in the state?

FIFTH GRADE
SOCIAL STUDIES

The "Static Absolute" concepts of economics will be introduced, at the beginning of the year, on the memory level. The plan is to give the students sheets of paper listing the concepts. The terms will be widely spaced on the sheets to allow the students to take notes, write examples, and define the concepts on the translation level. It is hoped the students will recognize the usefulness of these concepts by applying them on the interpretation level to their study of the United States, the remainder of North America and South America. Toward the end of the year, after the students have a more thorough understanding of the concepts, they will be expected to demonstrate thinking on the application, synthesis and evaluation levels.

Because the economic approach is new to students and teachers, and because of the complexity of the material, we feel it is best to stagger the introduction of the other economic concepts throughout the year. A logical order of introduction might be as follows:

Allocation of Economic Resources - introduced inductively in Units 1, 2 and 3.
Capitalism - Unit 3
Economic Decisions - Unit 4

Since a knowledge of the skill of map interpretation is important in the study of geography, the concept of "region" will be developed along with the "static absolute" concepts at the beginning of the year. It is hoped that each student will have a series of maps, each with a different geographical element. Through a study of the relationship between the traits and an application of the economic concepts we intend to lead the students to mental exercises on the higher cognitive levels.

PRECEDING PAGE(S) MISSING

3. Group regions according to different classifications of natural and man-made environment.
   a. Which regions have subsistence economies ; same kinds of physical features; and similar developments in communication and housing? List similar regions under titles on the board.
   b. Do regions with the same physical features have the same kind of economy and stage of development in transportation, communication and housing?
   c. Ask pupils which is more important to the way in which people in each region live -- natural or cultural environment.
   d. Which is more important to the way all people live -- physical environment or man-made?

4. (Using maps provided) Identify features of natural environment in regions to be studied towards end of the year. (Before reading about region) Tell what people in this region would produce. Can you tell whether they will have subsistence or commercial economy, live by farming, grazing, fishing, etc? (These are interpretations of physical features, but also applications of the concept that cultural environment will more affect the answers than the physical.)

5. Continue to ask students to identify man-made environment in each region, and how it affects his way of living.

6. Define natural and cultural environment.
   (Ideas to be included in answer: Natural environment includes surface features, rainfall, climate, soil and natural vegetation. Cultural environment includes man-made surroundings and ways of doing things.)

7. What in picutres pp. 4-8 -- Exploring Near & Far is man-made environment and what is natural environment?
   Where do you see some customs? Where do you see natural vegetation? Where do you see various climates?

8. (Using maps provided) Describe natural environment in each of regions studied beginning with Wisconsin.
   a. What are six features like in each region?
   b. How do they compare with previous regions studied?
   c. How do physical features of each region affect the economy of each region?

9. Ask questions that identify man-made environment in each region at various times.
   a. Is the economy commercial or sibsistence?
   b. Is the region forest, farming, grazing, fishing, manufacturing or trading region?
   c. What types of transportation, homes, machinery, and communication are in each region.

10. An evaluation question is one which requires a judgment. An example would be:

    Suppose you had to choose between 3 malted milks: One with lots of chocolate and thick; one with less chocolate and thin; and one in between. Which one of the three would you rather have? Before you decide on an answer you must first decide on what points are good or bad about each. Then you can make your judgment.

Suppose you had to choose between 3 bicycles of different makes -- English-style bike, Schwinn bike, tandum. Which one would you choose and why? What would be the first thing you would have to do before making a choice? Now that you have these good and bad points we will call these standards for judging. Now what do we do? (Make judgment based on standards.)

Now that we know how to set up standards and make judgements let's apply this to our Social Studies class.

a. Do you think life is better with Joe Manygoats or Sandra? Give reasons for your answer. First what will our standards be? (Teacher will write these on blackboard). What do we do next?

b. Of the 12 regions studied which one do you think is the best? Give reasons for your choice.

11. Write story about how a family's life would be different in same natural environment if their cultural environment were different.
Ex. Suppose Joe Manygoats town had a factory. How would his life be different?

Concept II

Human beings are more alike than different in various regions in physical characteristics and basic needs and wants.

a. Cultural differences are often mistaken as proof of biological or national superiority rather than difference in opportunity to borrow culture.

b. There are greater physical difference among people of same race than among people of different races.

Strategy of Concept II

1. Use 2 blackboards. List the similarities of the people in these two regions on one, list difference on the other. Do this for several pairs of regions. Now ask --
   a. What statement can be made about people in different regions in regard to how much they are alike and different?
   b. (Filmstrips - National Association of Christians and Jews. Man, One Family, None So Blind, We Are All Brothers) To what race do these people belong? After several incorrect answers ask: What statement can be made about physical differences of people of the same race?

2. Show recent pictures of region and compare with pictures in text as to clothing, food, Could also have live demonstration of old and recent mode of dress and types of food. Why do you think it is that these people wear the clothing they do or eat the food they do?

3. (Give definition of culture at this point if needed. Culture is people living together in groups who have a common pattern of behavior.) Write a paragraph from your book that shows cultural differences. Write a paragraph from one of the reference books that shows cultural differences. Does this prove that one culture is superior to the other? Give your reasons. Suggest ways in which a country can improve itself, and become superior to another country?

Concept III

Each region tends to regard its own culture as right and superior to all others.

- a. We need to understand cultural diversity to understand culture.
- b. Man tends to interpret all phenomena from his own cultural viewpoint.

Strategy For Concept III

1. How do you think the opposite group feels in each of the following situations?
   - a. Johnny cheers for his Wilson basketball team, thinks its better than Washington's.
   - b. Ann's father works for Sorge Dairy and Johnny's father works for Fischl's Dairy. Ann thinks Sorge Dairy Products are better than Fischl's.
   - c. Jack lives on a farm while Joe lives in the city. Joe thinks city living is better than country living.
   - d. Jane's cousin from Illinois recently came for a visit to Wisconsin. Upon discussin the states Jane's cousin decided Illinois was much better to live in than Wisconsin.

You have now given the meaning of a new word--Ethnocentrism--which means that you feel your group is better than any other group.

2. The following statements can be made of people of different regions. What principle does each statement illustrate?
   - a. The Australian wheat farmer thinks his farm is better than the one in Nebraska.
   - b. North Carolina and India think their cotton is the same quality.
   - c. The Norwegian people think they are better fishermen than the people of Maine.
   - d. The Australian people think their tennis players are superior to ours.
   - e. Maine and Wisconsin feel their tourist trade is about the same.

Then have pupils make up their own statements from books or outside references to illustrate this principle.

Concept IV

Production in a region is determined by comparative advantage.

A. Land	D. Management
B. Labor	E. Transportation
C. Capital	F. Technology

Strategy For Concept IV

1. The early settlers of Wisconsin were fur traders. Then lead mining became important. Later lumbering was an important industry. Still later this was replaced by dairy farming. Today Wisconsin is also an important manufacturing state.
   - a. How do you account for each of the above changes?
   - b. What might have happened in the change from lead mining to lumbering if the settlers had followed the slogan, "Go West Young Man"?

2. Management arranges labor and capital so it is most efficient. What would happen if an industry had poor management?

3. What would happen to an industry that had workers who lacked ambition?

4. Wisconsin ranks first in the making of cheese. What are the reasons for this? (Any product may be substituted for cheese.)

5. In order for the Packer Football Team to win, the players must cooperate. Explain this cooperation.
   a. Who is head of the team?
   b. Who calls the plays?

6. How does teamwork apply in industry?
   a. Coach Lombardi is comparable to what man in industry?
   b. Who calls the plays in industry? (See Exploring Wisconsin p. 77)

7. How do you account for the fact there is no industry in the region where Joe Manygoats lives?

8. What factors would be needed to make Pimwe's community a lumbering community?

9. What factors would Ali's community need to make it an industrial region?
   Explain each factor given in questions 7,8.

10. Write a story that tells what happened if in a subsistance region there was a change in any of these factors:
    a. Oil was discovered
    b. A railroad went through

11. Is Pimwe's way of living good or bad? Give reasons for your answer.

Concept V

Subsistence economy is one in which consumer goods are produced for immediate local use.
- a. Standard of living -- low
- b. Factors of production - much land, much labor
- c. Transportation and communication - primitive
- d. Kind of energy - muscle power
- e. Money - barter, no savings
- f. Market - none
- g. No specialization

Strategy For Concept V

After explaining a chart on commercial and subsistence economy the following questions may be asked:

1. What type of economy does this region have? Support your answer.

2. How do you think a community with subsistence economy could become one of commercial economy?

3. True or False: This economy is the best possible one for this region. Give reasons to support your choice.

Where to go from here

It is foolish to conceive that without the background and work that we have been indulging in these last four weeks it would be possible for other teachers to carry on the suggested program in full. A general explanation of the way in which we worked--use of the three strands--defining of large over-all concepts applicable to the grade level, and retaining continuity throughout the grades, careful attention to the taxonomy in an effort to stimulate higher levels of thinking, would be a good introduction.

Grade level groups could then look over the specific outline for their grade and be encouraged to use it as they feel able to do so.

Perhaps it would be well to emphasize the fact that many concepts herein included have been taught in a rather incidental way, and that this is merely a concentrated attempt to pin down the concept and use the correct terminology in so doing. Also it should help the student recognize the concepts in other areas of work and apply the knowledge gained.

SOCIAL STUDIES

FOURTH GRADE

In the fourth grade pupils should become familiar with the world's different region types and to understand that natural environment is one factor which limits the everyday life of people living in specific areas. However, man's social - cultural environment has much more effect on man's behavior than does physical environment.

Concept I

Man's physical and cultural limits: The physical features of the earth influence the nature and extent of man's achievement within each region, but it is man who determines its specific character within his cultural limits.

- a. The kinds of climate, soil native vegetation, animals and minerals influence man's achievements in each region.
- b. Man's behavior is much more influenced by his social, cultural environment.

Strategy For Concept I

1. Define two kinds of environment
   - a. Natural
   - b. Cultural
   - c. As we study various regions identify kinds of cultural and natural environment of each region. In each region relate environmental factors to kind of economy in each region.
   - d. About mid-year classify various regions and different periods in Wisconsin's history according to similarities and differences in natural and cultural environment. Notice that in regions with same or similar natural environments, cultural environment and kind of economy are different.
   - e. Ask the following question: Which more affects how people live in a given region, the natural environment or the physical environment? Hopefully the students will then induce concept number I.
   - f. Through the rest of the year use this same concept at the interpretation, and application level in the other regions studied.

2. Through the first semester develop a chart listing by region and time, the features of natural and man-made environment.

	Rainfall	Climate	Surface Features	Vegetation	Soil	Type of Economy	Type of Region	Transportation	Communication	Housing	Machinery
Wis. Indians											
Wis. Lumber											
Wis. Dairy											
Oregon											
Arizona											
Amazon											
Nebraske											

WHAT IS A STATE?

A state is a larger community than a county because it is made up of all the counties. The laws of the state are made by the governor and a committee of people from the towns and cities who are called representatives. The people of the state elect the governor and the representatives. They meet in the capital city to carry on their work. The capital of the state of Wisconsin is at the city of Madison.

1. Write the name of our state. ____________
2. Write the name of the city that is the capital of our state. ____________
3. Write the name of the city we live in. ____________
4. What direction would you go from Manitowoc to get to Madison? ________
5. What is the leader of a state called? ____________
6. Which is larger - a city, a county, or a state? ____________

Some rules are important to all people in a state. Can we think of some laws that have been made for everyone who lives in Wisconsin?

WHAT IS A NATION?

Our nation which is called the United States of America is a very large piece of land made up of all the states. The capital of our nation is Washington, D.C. The citizens of our country elect a president and representatives from the states to make laws for our country.

1. We have now learned some things about a city, a state, a nation, and a county. Put 1 before the smallest, 2 before the next smallest and so on.

   ______ county ______ nation

   ______ city ______ state

2. Write the names of three cities.
3. Write the names of three states.
4. What do we call the leader of our nation?
5. A governor is the leader of a city, county, state, or nation?

GOVERNMENT
Part 1

We have read about the community of Rockport. Now we will learn something more about this community by studying the meaning of a word. That word is government.

Every community has a government. This word has a big meaning. Part of it has to do with the rules in a community. Let us begin by imagining that Rockport has no rules. Maybe this sounds good to you but think what life would be like without rules.

"This is the story of Rockport, a town in Massachusetts. Rockport is by the sea. Anyone who lives there can walk to the edge of the water in a few minutes. The boys and girls would like to go to the beach to swim but their parents say it is too dangerous. The beach is littered with broken glass and people must wear shoes when they swim to keep from getting cut. Some boys like to throw stones and often the swimmers get hit. People who have picnics throw food they don't want on the beach. This brings flies and bad smells.

The trip to the beach is worst of all. Whenever cars are blocked on the street they drive up on the sidewalk. Some cars drive on the left side of the street and some on the right so there are many accidents. Children do not dare ride their bicycles to the beach because they might be stolen.

It is easy to see that Rockport needs some rules. Do you know any rules that we have in Manitowoc that make life safer and better?

Who makes the rules in a community? There are too many people in cities like Rockport and Manitowoc for them all to join together to make the rules. Instead the people choose a few men and women whom they think will make wise rules. In Manitowoc we choose a mayor and council. Here is a picture of the mayor and council in Manitowoc. (Show slide). They make rules which make life safer and better. (more convenient)

The rules in a community are called laws. The laws and the people who make the laws for a city are part of the meaning of the word government.

Part II

The government of a community does more than make laws. It also offers services to the people. This story shows what it means to say that a government offers services.

"The Tan boys could not go to school because there was no school. Their mother taught them to read and write at home. She liked to do this but it took much time and often she could not finish her work in the home and garden.

One day another family built a house near the Tan's house. In the next year more families came. One holiday the families all gathered together for a celebration. While washing the dishes one mother said she found it hard to teach the children. The other mothers quickly agreed. The women decided to ask the men if all the families could join together and have a school. That very day they decided to do it. One man said he had a room in his house that could be used until a school house was built. But, who would be the teacher. One family had an unmarried aunt living with them who knew how to teach children. She said she would be the teacher if the others wanted her to teach their children. Every family agreed to give some fish or food grown in the garden or perhaps a fur from a trapped animal to the teacher in order to pay her.

Later a school was built. A school teacher and his wife lived in the school house. The man taught the older children downstairs. The wife taught the younger children upstairs."

This is the way schools started in many communites. When the people join together to make a school they are making a government. The government helps the people to teach their children. We call government help with a problem a service. Other services of government are the fire department and police department. The government also serves us by building roads and making parks. Schools, firemen, policemen and parks cost money. The people pay for these services by paying taxes.

Now let us look at what we learned about government:

1. Every community needs a government.
2. The government makes laws that make living safer and better.
3. The people of the community must obey the laws.
4. The people of a community choose the men to make the laws.
5. When the families of a community cannot solve a problem they sometimes ask the government to help. The help by the government is called a service.
6. The people of the community must pay taxes to pay for the services.

Questions:

1. In the early days in Rockport the fishing boat went out too far. It got dark and the boat was still far from shore. The fishermen could not find the harbor and had to stay out on the water all night. They were afraid that they might hit a rock in the darkness and sink. When morning came they found the harbor and were safe. When they got home they decided to ask the government to help do something which would keep boats from getting lost when they were near Rockport at night.
   What do you think they asked the government to do?
   Where did the money come from to pay for this help?
2. There is a law which says that lobster fishermen must only take lobsters from their own traps. One man in Rockport didn't obey this law. What do you think will happen to him?
3. Why are there no more pirates in Rockport?
4. What laws are you reminded of by the picture on page15?
5. Which of the following are services of government?
   a. The captain tells his story about pirates to the children.
   b. The library in Rockport offers books to anyone who wants to read.
   c. A fire department puts out a fire in a store.
6. True or False: The government must hire people to work for it. _____
7. True or False: Everyone who works for the government makes laws. _____

PLANS FOR QUESTIONS

The following exercises are examples of the various types of questions that might be used in teaching the Social Studies concepts. These exercises demonstrate various types of questions that would be used to promote thinking in the categories beyond the memory level. The questions have been written so as to lend themselves to use in many Social Studies units rather than to a specific unit.

Questions:

1. What is the main occupation of this group of people?
2. What accounts for the kind of work they do?
3. Does the location of the place have anything to do with the kind of work these people do?
4. What has capital investment bought to make production possible?
5. a. How has production improved through purchase of this capital?
   b. How has this purchase in turn benefited the worker or laborer?
   c. What influence does this have upon the community?
6. What specialized equipment is used in this industry?
7. How is specialization of workers used in this industry?
8. What examples of technological advancement can you see from the days of the early settlers until the present day?
9. How does improved transportation make it possible for the people to sell more of the goods they produce?
10. We say these people are interdependent. What is meant by that?
11. What is the advantage of specialization in this production?
12. How is management different from labor?
13. Which is more important - management or labor? Give reasons for your answer.
14. How does the natural environment of this place influence the work of the people who live here?
15. How have the people improved or changed the natural environment to improve their living?

16. Why is education necessary to have technological specialization?

17. What are some special services that every community needs?

18. How is specialization of individuals made possible?

19. In what ways has specialization of individuals helped you?

20. Does specialization of individuals make us more or less dependent upon others?

21. Look at the map on page 154 of Ways of Our Land.

  a. Name the states the airplane flies over on the trip from Los Angeles to New York.

  b. Name three cities that are on this route.

  c. We could say the airplane crossed the: a. city, b. state, c. nation, d. county.

22. The way of growing cotton has changed since the early days. What has brought about this change?

23. How does a bad frost in Florida affect the people who live in Manitowoc?

24. What affect would a bad frost in Florida have upon the orange growers in California?

25. Do you think the Navaho Indians are happy about their way of life? Explain your answer.

26. What do you think would happen to the town of Nemacolin and the people who live there, if there was no more coal in the mine?

27. List as many ways as you can that the people of New York City depend upon people from other parts of our country.

28. Pretend that you and your family are planning to take a trip. If you could choose to visit any one of the places we studied during the year, which place would you choose? __________ Tell why.

29. Why must food sold in stores of New York City be sent into the city?

30. Write a riddle which describes an airline worker.

31. Did Mr. Tarr and the other settlers have capital in their businesses long ago? ______ If so, what was the capital they had?

32. How do the fishermen get the capital they use in their work?

33. What is the "capital" the fishermen of Rockport use in their work?

34. Write a plan for improving the standard of living of the Navahos.

35. As you look through the pictures can you see some of the equipment (capital) necessary to carry on the work that is evidently important in this area? How was this equipment bought to help with this job?

36. What technological advancements have been made so that the workers are safer in carrying on their jobs?

37. Greenville is a "river town" that has moved several times because the river kept eating away the bank.

   a. What has been done to correct this problem?

   b. Was this problem one that concerned the town of Greenville alone?

   c. What difference would the floods in this area make to people living in other states?

   d. Would a problem such as this be the responsibility of the cities along the river, the states nearby, or the nation? Explain your answer.

38. A number of places in Rockport, Maine have names that describe the places in some way, or tell something interesting about them. Here are six real places that you might visit if you were in Rockport:

Eagle Rocks	Halibut Point
Sandy Bay	Pebble Beach
Whale Cove	Cathedral Rocks

Choose one of these places and make up a story that tells how you think that place got its name.

39. Make a poster of something you think other boys and girls would like to visit in New York City.

40. During a hurricane the steeple of the Old North Church in Boston was destroyed and much other damage was done. The expense to repair it was very great. How would you feel about fixing it up as it had been before the hurricane?

AA PLAN TO INTEGRATE IMPORTANT ECONOMIC, POLITICAL, AND GEOGRAPHICAL CONCEPTS INTO THE THIRD GRADE SOCIAL STUDIES COURSE

Objectives:

Our third grade Social Studies course is designed to develop an initial and fundamental understanding of our country. It is a general introduction to the many different regions in the United States, the various kinds of work the people do to earn their living, and the resultant interdependence of these people. We aim to integrate the following powerful concepts because they will enrich the present curriculum, offer endless opportunities for higher levels of thinking which will add immeasurably to the cognitive abilities of the students.

I. Political and Geographical Concepts

A. Understanding of the terms city, county, state, nation will make it possible for the students to recognize the various communities "visited" as we "tour" the United States.

B. We will develop the understanding that there are various regions in our nation. Specifically those where farming, fishing, mining lumbering, industry, are carried on.

C. We will learn that rules and regulations are a part of community life everywhere to enable people to live together in harmony.

D. We will learn that part of the business of government is to help people that it represents to do what they cannot do for themselves--or that they cannot do as well for themselves.

II. Economic Concepts

A. Factors of production

Production is the process of combining labor, land, capital and management to produce goods and services.

B. Capital investment

Savings and investment of money are necessary to obtain capital for production.

C. Specialization

1. Division of labor
2. Geographical specialization
3. Technological specialization
    a. Individuals
    b. Equipment
4. Technological advancement

D. Interdependence

Interdependence means people rely on other people to help meet their basic needs. In some respects interdependence is beneficial, and in other respects it is undesirable because it creates limitations.

General Strategy

Our plan is to introduce the Third Grade Social Studies course by presenting the definitions of city, county, state, and nation so as to enable the children to basically understand their meaning in terms of geographical location and political importance. Students learn the definitions and ideas first on a memory level, and then interpret them throughout the year. During the period of interpretation there should be reference to the definitions many times in each unit in class discussion and written work. From time to time throughout the year test questions should deal with the definitions in order to assure the student's ability to differentiate between city, county, state and nation.

In order to teach the economic concepts most effectively, it is our plan to introduce a few concepts with each of the first five social studies units. All of the powerful concepts would be introduced before completion of the unit "A Coal Mine at Nemacolin." This would be done during the first semester of the Third Grade.

The strategy is to present the powerful concepts and then lead the students to discover their usefulness by applying them to communities which are studied throughout the year.

Students will learn the ideas first on a memory level and then interpret them throughout the year. In this way the students will develop a more mature understanding and thereby enable them to think at the higher levels of thinking, namely application, analysis, synthesis, and evaluation.

Application to an underdeveloped community

In the unit dealing with the Navaho Indians it is evident that the standard of living is very low. Using the economic concepts, the students should be able to recognize the absence of them in this underdeveloped community. This will afford innumerable opportunities for thinking in the higher categories.

Plan for Introducing Economic Concepts in Grade Three

I. Rockport, Massachusetts	Specialization 1. Division of labor 2. Geographical
II. Florida - Trip	Specialization - Con't. 1. Individuals 2. Equipment Technological Advancement (Williamsburg) Review concepts of city, state, nation
III. Florida - Frostproof	Technological specialization 1. Individual 2. Equipment Mass production Interdependence
IV. Mississippi	Factors of production - land, labor, capital
V. Nemacolin	Factors of production - Con't. Add management Capital Investment

END OF FIRST SEMESTER

VI.	Geneva Lake	Technological advancement -- farming dairying Geographical specialization Specialization of services
VII.	Train Trip	Division and specialization of labor Geographical specialization -- corn, wheat, cattle Interdependence Factors of production -- land, labor, capital Capital investment
VIII.	Texas--Cattle and Cowboys	Geographical specialization --cattle Technological advancement Land, labor, capital Capital investment Division of labor Interdependence
IX.	Navahos	Apply the economic concepts already learned to this underdeveloped region. How could the standard of living of these people be improved?
X.	California	Geographical specialization Division of labor Factors of production Capital investment Technological specialization Technological advancement Interdependence
XI.	State of Washington	Factors of production Capital investment Specialization -- labor, geography Interdependence
XII.	By air to New York, New York	Review city, state, nation Interdependence Review all economic concepts
XIII.	Alaska, Hawaii, Puerto Rico	Review concepts of state, nation Geographic specialization Interdependence Technological advancement

THIRD GRADE
SOCIAL STUDIES

Powerful Social Studies Concepts

Tests results reveal that third graders in Manitowoc are unable to recognize and define the meaning of city, county, state and nation in terms of geographic location or political importance. This unit is designed to further clarify the following basic understandings.

A. Cities, counties, states, and nations are all communities that vary in terms of area, population and government.

1. A city is a community of people who select a mayor and a city council to help make and carry out the rules that will be best for their particular city. Our city is Manitowoc.

2. A county includes the cities and farm area surrounding the cities in a particular section of a state. There may be many counties in a state -- Wisconsin has 72 counties. We live in Manitowoc County. A group of people called the county board makes rules for the people who live in the county.

3. A state is a larger community than a county because it is made up of all the counties. The laws of the state are made by the governor and a committee of people from the towns, cities, and counties who are called legislators. The governor and legislators are elected by the people of the state. They meet in the capital city of the state to carry on their work. The capital of Wisconsin is Madison.

4. Our nation which is called the United States of America is a very large area of land made up of all the states. The capital of our nation is Washington, D.C. The citizens of our country elect a president and legislators from all the states to make the laws for our country. There are over one hundred nations in the world.

B. There are various kinds of communities

1. farming
2. fishing
3. forests
4. factory
5. mining

C. Rules and regulations are a part of community life everywhere. Self-discipline makes it easier for people to live and work together in harmony. It is most effective with community approval.

D. It is the business of government to do for the people what they cannot do for themselves or what they cannot do as well for themselves.

The following outline includes economic concepts that can be integrated into the third grade Social Studies course.

A. Factors of Production

Production is the process of combining labor, land, capital, and management to produce goods and services.

1. Labor refers to all persons who use physical and mental energy to produce goods and services.

   There are two kinds of labor

   a. Management which makes important decisions
   b. Labor which carries out decisions

2. Land is all things supplied by nature that become part of a finished product.

3. Capital means the buildings, machines and tools which are used in the production of goods and services.

B. Capital Investment

Savings and investment of money are necessary to obtain capital for production.

1. Savings is the money that has been set aside for future use.

2. Investment is the use of savings to buy capital.

C. Specialization

Specialization is dividing the processes and types of production in the most efficient manner. Specialization aims at higher production, better quality, and lower prices.

1. Division of labor is the division of production among many workers so that each does the type of work he likes and is able to do best.

   a. Some people help produce goods.

   b. Some people help produce services.

2. Geographical specialization means that each region tends to produce the products that it can produce most efficiently because of its natural environment and location. The natural environment in which people live helps to explain why people make a living in the way they do.

   a. Kansas - wheat farms

   b. Florida - citrus fruits

   c. Texas - cattle raising

3. Technological specialization brings about mass production. There are two kinds of technological specialization.
    a. Specialization of individuals through education (dentist, doctor, welder, machinist)
    b. Specialization of equipment to do a particular job. (crane, cotton gin, combine, cutter)
4. Technological advancement. Technological advancement has made specialization possible in the modern world.
    a. Products were once made by hand but are now made by machines.
    b. Products were once made in the homes but are now made in factories.
    c. Human energy and animal power have been replaced by electricity, gas, etc.
    d. Transportation has made specialization possible.
        1' Improved highways (trucking)
        2' Improved railroad facilities (refrigerator cars)
        3' Air transportation (cargo liners)
        4' Improved water transportation

D. Interdependence

Interdependence means people rely on other people to help meet their basic needs. In some respects interdependence is beneficial, and in other respects it is undesirable because it creats limitations.

1. It is beneficial in that it encourages harmony and cooperation.
2. It is undesirable in that we lose our independence and are at the mercy of others.

THIRD GRADE
TEACHING POLITICAL AND GEOGRAPHICAL CONCEPTS

The political and geographical concepts will be taught using the text In City, Town and Country - Scott, Foresman, various maps, and work sheets. It is recommended that the worksheets be done with the students to insure understanding of the information therein, and afford ample opportunity for class discussion.

Scott-Foresman Co. In City, Town and Country

Middletown - pp. 54-55. Children read story and observe picture.
Compare to Manitowoc.

Vocabulary (community, factories, business center)

1. What does the story tell us about Middletown of long ago? What changes have taken place in Middletown? Long ago Middletown was a "neighborhood community". What one word better tells what Middletown is today? Which is larger--a "neighborhood community" or a "city"? Would a city have neighborhood communities in it? What else would we probably find in a city? Can you find a part of Middletown that has not changed much over the years? How might this have been an attraction to early settlers? How would it help the community today? Show slides of Manitowoc. Discuss why Manitowoc is called a "city".

Vocabulary (community, mayor, city council, rules, citizen)

1. How do the pictures I have just shown you remind you of Middletown? Would you call this community a neighborhood community or a city? Explain. Why? Do you recognize this city? Locate places you recognize. Do you think Manitowoc has always looked like this? Explain. Is there any part of our town that has not changed over the years?

ALL ABOUT MANITOWOC

When people live together in large groups such as Manitowoc, or any other city, it is important to have rules or laws for everyone to obey. The people choose or elect a mayor and some other citizens to help them. This is called a city council. The mayor and the city council make up the city government.

1. What do we call the person who is elected to the highest office in the city government?
2. What do we call the group of people that helps the mayor of our city make the laws and rules?
3. The mayor and the city council makes rules that will be best for our city. These rules have been made for our city.
   (1) Cars may park for only two hours on some streets.
   (2) All rubbish must be dumped at the city dump.
   (3) Guns may not be fired inside the city limits.
   (4) Leaves and rubbish may not be burned in the city of Manitowoc.
   (5) Dogs may not run loose in the city of Manitowoc.

   List some other rules that might be made for our city by the mayor and city council. 1. 2.
   3. 4.
4. Who helps to make sure that the rules made by the mayor and city council are obeyed?
5. If these rules are not obeyed by the people of the city, how are the people punished?
6. Fill in the blanks with the words below to make a true sentence.
   (rules, community, people, mayor)

   Manitowoc is a ________ of ________ who have elected a ________ and a city council to make and carry out ________ for the city.

Scott, Foresman Co. - In City, Town & Country
Read pp. 96-126 Farmington, a small town in Wells County.
Learn to use a map key.
Weekly Reader - Map Booklets for exercises in map reading.
Map showing Manitowoc County
Do worksheet - story, etc.

Worksheet for all.

A STORY OF MANITOWOC COUNTY

A county is made up of cities and farm lands around the cities in that part of the state. There are many different counties in our state of Wisconsin. We live in the city of Manitowoc but we also live in a county that has the same name, Manitowoc County. A group of people called the county board make rules for the people who live in the county. The leader of this county board is called the chairman of the county board. The county board meets at the county courthouse. Manitowoc County courthouse is in the city of Manitowoc.

There are many offices in the county courthouse. The business of running the county is taken care of in these offices. Some of the offices are:

1. The office of the Register of Deeds
   Birth records and property records are kept there.
2. The office of the County Treasurer
   This office takes care of money that is collected through taxes, and uses it to pay the expenses of the county.
3. The office of the County Highway Commissioner
   This office takes care of all county highway problems.
4. The office of the County Agricultural Agent
   The farmers of the county go to this office to get help and advice from the County Agricultural Agent in order to improve their farming methods.

Show map of Manitowoc County and do worksheet

1. Color all the towns and cities green.
2. Put a red square around the city where the county courthouse is.
3. Color all of the rest of the county yellow.
4. Which is larger - a city or a county? ______________
5. Are there more people in a city or in a county? __________
   How do you know? _____________

6. The Jones family enjoys a five mile drive out into the country where they stop to eat a picnic lunch at a roadside park. Is this park a city park or a county park? ____________

7. Mr. Brown's job is to collect the money from the parking meters in the downtown section of Manitowoc. Does Mr. Brown work for the city or the county? __________

8. Billy's father plows the snow off the highways that lead to the city of Manitowoc. Does Billy's father work for the city or the county? __________

9. Miss Smith, a school nurse, checked the eyes of the children who go to our school. Who pays Miss Smith for her work, the city or the county? ____________

10. John must have a license for his bicycle. Does he get the license from the city or from the county? __________

STATE

Use state wall map of Wisconsin (see Fourth Grade)

Use map from Exploring Wisconsin - Follett - 4th Grade text - p. 91

All counties in Wisconsin are shown.

Locate Wisconsin on United States map.

Clothing

1. Money - emphasize again
2. Production of goods
3. Ownership of goods
4. Division of labor
    a. Sheep ranch
    b. Picking cotton
    c. Getting silk from the silkworm
5. Job specialization
    a. Making a suit or dress

I. Clothes we wear

A. Income
  1. Review use of income.
     What does income have to do with clothing?

B. Kinds of clothes
  1. For all kinds of weather
  2. For all times and places
     a. Dress up
     b. Night clothes   Comparisons
     c. Work Clothes
     d. Play clothes

C. Kinds of materials used.
   Follow social studies outline.

Problem 1 -- Pretend that you are going to visit your grandmother for Saturday and Sunday. Plan the clothes that you will wear and you will take along. Draw pictures of these clothes and use these pictures in telling the story about what you did at Grandmother's house.

Problem 2 -- Compare making of George's New Suit in the movie with a suit mother might make starting with shearing the sheep.

Question 1 -- If you could buy a new coat what would you think about first: style, size, price, color, material, or what use you will make of it?

Question 2 -- When you dress each morning how do you decide what to wear?

Question 3 -- How can taking care of your clothes save money? Is this important?

Question 4 -- What have you learned in studying about clothes that helps you every day?

Patterns for Questions:

1. How might this family be run better?
2. How might this factory be run better?
3. Which is better of the following examples:
   a. Children helping in realistic things such as in industry or carrying out wastepaper.
   b. Children helping in unrealistic things such as shingling the roof.
   c. Children not helping.
4. Which is better? Clothes for purpose
   Tools for purpose

SECOND GRADE

TENTATIVE POWERFUL CONCEPTS FOR SOCIAL STUDIES

I. Basic Institutions: All societies develop social institutions which meet the needs of their people.

A. All people have the same basic physiological needs.

B. All societies develop the same basic institutions to meet their basic needs.

C. Institutions are well established patterns of behavior that change through time. These patterns include rules, customs and values. The rules, often with strong moral meaning, are built around basic functions in society (like raising children.)

1. Family: A group (of blood relatives) whose functions are to regulate behavior toward one another, to reproduce, to provide essentials (food, clothing shelter), and to provide patterns of affection and authority.

2. Educational: To transmit culture and teach rules so that people fit into social organizations which in turn give us stable government and a degree of certainty about the future.

3. Religious: An emotional and spiritual satisfaction which affects own attitudes, beliefs, ethics of conduct and practices, and also provides explanation of our existence.

4. Economic: Essential function of the economic system is the production and distribution of goods and services. People are socialized to participate in economic activity in order to satisfy their basic needs. (support themselves).

5. Political: All societies create laws. Designated groups set up the rules and act to see that they are enforced. Democracy is a form of government in which people make the decisions. All nations are interdependent.

II. Presenting Concepts to the Students

The following are ways in which the teacher might want to present the concepts. The presentation will vary as to the teacher, the materials on hand, and the class. A presentation may very well be adaptable to another concept. This will, of course, depend upon the ingenuity of the teacher. The teacher and pupils are to try to use the basic institution concept terms as stated.

One general continuing way of building up the five concepts would be to have them grow out of bulletin board activities. An appropriate caption on the bulletin board might be MAN'S BASIC NEEDS. As each concept is introduced and developed it should be added to the bulletin board in form of pictures (brought in by pupils) and short statements.

The five concepts are to be developed individually, which will probably take considerable time.

Definitions for Students

A. Family: A group made up of a mother, father, sisters, brothers and any other relative living together and learning how to get along. New brothers and sisters come to join your group. Mother and father see to it that everyone is given food, home and clothing. They also give you much love and teach you to do the right thing.

B. Educational: To show many different ways in which people live. To find out what a rule is and how it is useful in making our home, school, community and country a better place in which to live.

C. Religious: When you go to church or Sunday School you get a good inner feeling. You learn what is good and bad. These things help us to know ourselves and how life can be good if we do the right thing.

D. Economic: In a community, community, people will be able to find a job (some kind of work) so that they can earn money to buy the things that their families need to live.

E. Political: All communities make rules that we call laws. There are certain people chosen to make the rules and to see that they are followed. This is our government, called a democracy. People all over the world need one another.

Suggested Ways to Introduce Definitions

A. Family: Dramatization could be used to bring out this concept. Children could take the parts of various family members--father going to work, mother taking care of the new baby brother (doll), grandmother playing with other children.

From this dramatization lead questions would be asked and the concept family established.

B. Educational: Teacher could make up an original story or find a library book that would bring out the transmitting of culture and importance of rules.

From these stories the interpretation and meaning of the concept educational could be brought out from the children with teacher guidance.

C. Religious: The teacher could show a series of pictures of Indian dances, medicine men, etc. and also pictures of American boys and girls going to church or Sunday School.

From these pictures the children could be led to understand the concept of religious institutions.

D. Economic: (Pupils are given drawing paper.) Each child is to draw daddy at work. Hopefully, the pictures will illustrate production and distribution of goods and services. These pictures may be put up and children given an opportunity to tell what daddy does to earn money. Discussion can be led to bring out why daddy works (satisfy basic needs). The name economic is then presented and and used.

E. Political: To develop this concept we could ask questions going from the known to the unknown. From these questions and answers the children should be able to form the meaning of this concept political. (The word political must be given pupils by teacher.

Some examples of questions:

1. What is a community?
2. What is a rule?
3. Is a law a rule?
4. Who makes the laws?
5. What are some laws?
6. Who sees to it that laws are followed?
7. What happens if a law is broken?

The above questions could also be applied to the classroom situation in relation to class procedure (rules, etc.).

III. Description of Questions Using the Institutional Concepts (to be used after concepts are introduced).

A. Providing Essentials (Indians) - Family, Economic

Teacher will present orally the story "Indians of the Woodlands" (Communities at Work - Heath, pp. 224-231). Children are to be given other Indian stories. They are to be read independently. Children are to recognize the concepts set up in the oral story.

Possible question: "Which concepts does this story show?"

B. Educational, Religious, and Political Concepts (Indians)

A prepared bulletin board of pictures will show Indian activities such as: father teaching son skills, mother teaching daughters skills, medicine man, various Indian dances, council meetings, etc. The children will match concept word cards (teacher made) with the correct picture on the bulletin board.

C. A chart story will be prepared (class project) illustrating any of the five institutional concepts. Pupil ideas may come from any of their previous learnings and experiences.

D. After viewing visual aids such as films, filmstrips, slides view-masters, pictures, and postcards each pupil would be asked to make a crayon illustration showing one of the many institutional concepts that was presented.

E. Pupils will compose stories, peems, riddles, rhymes, letters, etc.

1. The teacher will assign a concept individually and let pupil choose his own desired language and skill to illustrate it.

2. Pupils will be given opportunity to read orally their written composition. They may then call upon the class to classify the concept.

F. This type of work will be used after all concepts and content material have been presented. Some ways to illustrate the concepts are puppet shows, diorama, movie or T.V. box, booklets, dramatizations, etc.

G. Do you think any one of the institutions is better than any of the others@ Why or why not? (This is an established pattern that may be used in many units.)

5 H. Which had the better education--Indians or the Pioneers? Why do you think so?

I. Which school would you like to go to--Indian, Pioneer, or Our School of today? Give reasons for your answer.

4 J. Would you have liked to have been a member of an Indian family? Why?

SECOND GRADE READING STORIES

We Are Neighbors (2^1) Ginn

I. Garden Street Neighbors - Community Helpers - Relationship to each other (neighbors)

II. Animal Neighbors - Science - Living Things
- A. All living things depend on their environment for the necessary conditions of life.
  1. Toddle, the Turtle p. 51-56
  2. The Turtle (poem) p. 57
  3. Tabby & Her Kittens p. 65-69

III. Good Times - Science - Energy
- A. Energy is needed to move things
  1. Surprise on Wheels p. 84-91
- Social Studies - Economic Institution
  1. Blue Dishes p. 92-98.

IV. People Who Work For Us
- Community Helpers (good for new unit in Social Studies if developed.
- Social Studies - Economics - is carried throughout chapter.

V. Round Go the Wheels
- Social Studies - Family and Economic Institution
  1. The Turner's Trip,p. 201
  2. A Trip in the Little Caboose, p. 209
  3. Ebenezer, p. 196

Around the Corner (2^2) Ginn

I. We Live in a City - Social Studies - Family & Economic (possibilities for new unit - Metr. Community)

II. Up and Away - Science - Energy (Mechanical)
  1. Airplane Andy, p. 102

III. Out of Doors - Social Studies - Family (animal families)
Science - Living Things

PRECEDING PAGE MISSING

II. Which community helper helps us keep these laws?

A. The Policeman
   1. Does the policeman provide a good or a service? (To be asked for each community helper.)
   2. What services does he render?

Problem 1

I am going to tell you a story about two policemen. One policeman was called to an accident. The man in the car had run into a tree and was thrown from the car. When the policeman came he found a billfold on the street near the car. No one was looking so he picked it up and put it in his pocket. What do you think he is going to do with this billfold? (Discuss) His child is sick and he needs some money should he keep this money? (Discuss)

Another policeman was walking his beat downtown. He was very tired so he decided not to check all the doors of the buildings. Later that night one of the buildings was robbed. Who was to blame for this?

Would you like a man like this as a policeman in your community?

Now what kind of a person would you want for a policeman? (Set up standards for a good policeman)

1. Division of labor and cooperation
   A. Each policeman assigned a job. (Also fireman, postman)

Compare jobs of Policeman
   1. Office
   2. Motor cycle (traffic--check parking meters)
   3. Policeman in cars
   4. One who walks beat
   5. Safety Patrol
      a. Crossing guards
      b. Children

Shelter

Introduction to shelter:
What is a shelter?
   1. A shelter protects you.
   2. Keeps you safe from weather.
   3. Protects the things you own.
   4. A place to entertain.

I. Discuss ownership of goods - begin with children owning crayons, pencils, and personal things. Talk about parents and owning a home, etc.

Refer back to your chart -- What we need? Income or money is needed to buy the things we want -- one of which is a home.

Why do people own homes or want to? How do people know whether they want to buy a house?
   1. Have saved some money
   2. How do they decide what kind of home to buy?
      a. Size of family
      b. Cost of home
      c. Income and money saved

II. Kinds of Homes

A. Styles of homes
1. One story
2. Two story
3. Apartment
4. Duplex
5. Ranch

B. Our Home
1. Family
a. Division of Labor
1. Who does things in your family?
2. Who takes care of the baby?
3. Who mows the lawn?
4. Who buys the groceries?
5. Who makes the beds?
6. Who prepares the meals?
7. Who earns the money?
8. Why does a family need money?
Who remembers why we divide the work at home?

2. Materials Used
a. Make up stories about materials at hand.
Ex. A family who lives near a woods would use ______?
B. Compare the Eskimo with a child in Hot Wet Lands as to materials used.

3. Workmen -- Job Specialization
a. List workmen that you have seen who help in building a house.
b. Tell what each one does.
c. Why do we have special people for all these jobs? (More efficient and cheaper). When you like what you are doing you do a better job and produce more. Would it be a good thing for your daddy to build a home all by himself? Explain. (Trace-beginning with lumber from the tree)

Problem: You are the first person on the moon. You took along a box of tools. Now you need a shelter. Show in a picture what you would use for shelter. You can't live in the spaceship. Tell about your picture.

C. Homes Around the World
1. Comparison
a. Climate
b. Materials
c. With own home

D. Animal Homes
1. Why do we need to build homes for some animals?
2. Do all animals use division of labor?
Which ones do?
Use questions in Science Teachers Guide, page 92 and 93 on animal homes.
Why is it some animals do not have to build homes? Name some. (Turtle, Snail)

Refer back to our chart on wants. What wants have we studied seo far? (Food & Shelter) What one do we have left?

SOCIAL STUDIES - GRADE ONE

In planning this material we attempted to build some powerful concepts which would develop a higher level of thinking in our Social Studies program. This outline is in no way a complete Social Studies program but rather an overlay of ideas to be used with the present curriculum.

Understanding the economic problems of the home and community at an early age provides the first insight into the nature of our economic system. We have attempted to identify the economic aspects of the home as they apply to the local community. We believe that if these concepts are made familiar in the primary grades and are reintroduced in successive grades the child will be better able as an adult to meet individual and national economic problems.

Interdependence: People work together in their homes, schools and neighborhoods to help meet their basic needs and wants.

A. Division of Labor takes place within the family and the community and increases interdependence and, therefore, requires the cooperation of its members.

B. Job specialization requires many different kinds of workers with specialized jobs to provide people with food, clothing and shelter. Specialization increases interdependence and necessitates cooperation. Division of labor and job specialization increase efficiency.

C. Production of goods must be done to provide food, clothing and shelter.

D. Production of services means to help people when they want to buy assistance. These services are an economic resource.

E. Buyers and sellers meet in the market to exchange goods and services.

F. Income is received for the production of goods or services.

G. Money serves as a medium of exchange in satisfying wants and needs.

H. Ownership of goods depends on deciding what to buy, how much to spend, ans how much to save. Ownership can be private or public.

I. All people in the home are consumers.

Start with listing the children's names on a chart and after each name write the mother's or father's or both of their occupations.

I. Concept - Wants and Needs

Make another list of things that answers this question: What do we need money for? List the things the children name. Some are things we need and some are things we want but don't need.

Problem 1

This family has a problem. Mother has old furniture and wants some new furniture. One night there is a bad storm and part of the roof blows off. What should this family do? Which is a need? Which is a want?

Food - Shelter - Clothing. List the things under these headings. These are all things we use or consume. Consume is another word for use.

II. Consumption

Your mothers and fathers all work to make money in different ways. Why? What do they do with money? (Satisfy our needs and wants)

XII. Producer of Goods and Services

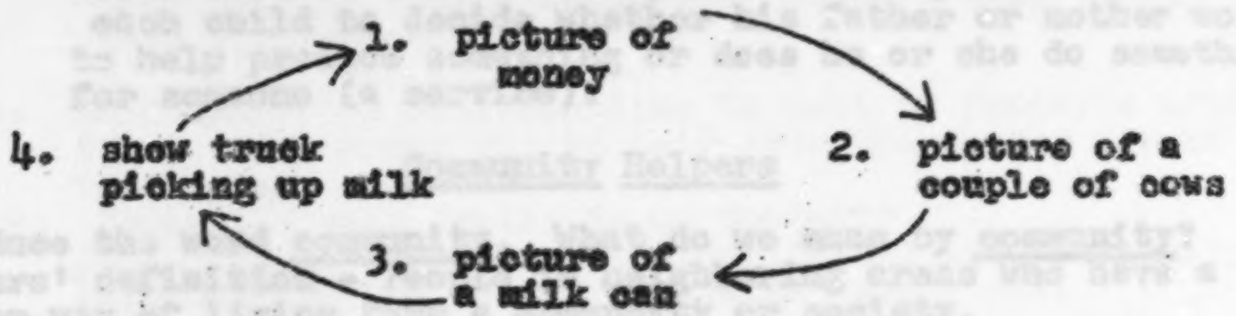
A. Some people do things for others and get paid for it. Other people grow or make things and get paid for it. Those who work and produce something we call producers of goods. Those who work and do something for us we say produce services.

Show pictures of various occupations that are producing a good or producing a service. Does the grocer make things to sell or does he do something and get paid for it?

Let's consider the farmer as a producer of food.

Problem 2

Dairy Farmer



1. picture of money

2. picture of a couple of cows

3. picture of a milk can

4. show truck picking up milk

1. Let's take the dairy farmer. What does he produce? Goods or service (Use cycle)

   a. What does 1 show? (money he has)
   b. What does 2 show? (what he buys and owns)
   c. What does 3 show? (what he produces)
   d. What does 4 show? (what he sells)

2. Now let's take the fruit grower. (Use cycle) Food is our greatest need. We must use some of our money to buy food.

Food

1. Money
2. Buying and selling of goods and services
3. Production of goods
4. Ownership of goods

Now let's take the grocer.

A. He has money. What does he buy? (Groceries - building - freezer)

B. What does he produce? (Service)
What services does he produce?

1. Advertises products (show ads)
2. Provides a variety of foods
3. Buys in large quantities and packages them for our convenience

From here - Discuss vegetables and fruits, follow Social Studies outline.

Examples of questions and problems to be used with food unit

1. How is the roadside stand different from the supermarket?
2. Discuss the reasons for caring for and preserving foods.
3. Relate climate and foods. Why are foods raised in certain places?

Problem -- If you were following a truck and saw water running out of the truck what do you think might be in the truck? Suppose there was food in the truck why would the water be running from the truck?

Refer back to chart about parent's occupations. Ask each child to decide whether his father or mother works to help produce something or does he or she do something for someone (a service).

Community Helpers

I. Introduce the word community. What do we mean by community? Teachers' definition - People in neighboring areas who have a similar way of living form a community or society.

Children's definition - People living and working together in an area to earn a living.

Let's list some people who help us as we work to earn a living.

List community helpers.
Why do we need rules for our school and room? (Compare with laws.)
Discuss rules and who makes them.

For our school -- Principal and teachers

For our room -- Teacher and children

How about our city? Who makes the laws?

in order

1. People are more alike than different.

First of all the meaning of the words "alike" and "different" would be taught and tested. Pictures, different shape blocks, toys, or any items could be used to answer "Are these alike or are they different?" When the word concepts are fixed then the concept as a whole is ready to be applied to people. The Family Unit is the first place to use it, then the School Unit, then in many other situations during the year. The new child who enters during the year, Brotherhood Week, and times when we learn a song or listen to a story about children from another country.

Problem: List on two charts the things that show that children are 1. the same "How we are the same"
2. different "How we are different"
Notice how much longer the first chart is.

Question: From looking at the charts would you say that children are mostly alike or mostly different?

Problem: The teacher is preparing the children for the arrival of a new child entering from another city in mid-term. We know his name but no more about him. The teacher is trying to prepare the children to accept the new child, and to strengthen the concept that the new boy will not be so different.

Question: "Imagine that you are John (the new boy). You are coming to our school for the first time. What would you like to have the children in the new school do for you?" "Let's take turns to tell one thing." Teacher will accept childrens' answers even though some are repeated.

Problem: On Mondays the children like to tell of Sunday's activities. Encourage all to tell even though the answer is "I played outside."

Question: "What did your family do on Sunday?"
Sum up by noting that many families do the same thing, depending on the weather, Daddies' work, etc.

Problem: To put across the fact that while similarities are noticeable in families, there are also differences, such as types of work the fathers do.

Question: "Draw a picture showing the kind of work your Daddy does when he goes to work each day."

2. All People live and work in groups.

First be sure that all have the right mind picture of the word "group". The basic concept will fit in many situations during the year and thus strengthen the meaning for the children. The family is the first group (most familiar), but now the children are in another larger group, the kindergarten, and the kindergarten is a group within a larger group, the school. Children know about other groups, a Cub Scout group, a neighborhood play group, or a large church group. The concept becomes firmly fixed as they are led to compare different size groups and to feel a part of some of them.

Problem: To give meaning to the word "group" use it in many situations from the beginning of the year. All of us here together in the kindergarten form a "group".

Question: "Would you call this a large group or a small group?" "Now stand up and make some small groups. Go any place you wish in the room."
"Now let's come together in a large group."

Problem: Children and teacher tour the building and observe different classes at work. The next day all classes meet in a general assembly. After the experience:

Question: "A very large group may be made up of ______________ ?" Ansers will vary from "many people" to "many small groups."

Problem: Give children magazines, scissors, and paste.

Question: "Cut out pictures of people that look like members of your family. Paste them together on a paper to make a picture of your family group."

Problem: After discussion and dramatic play centering around group interests, the teacher may divide the class (25 to 30 children) into 4 groups. Each group will take time to plan and pantomime a whispered direction:

Question: "Play you are a family group." (5 children)
"Play you are a neighborhood group." (8 children)
"Play you are a kindergarten group." (10 children)
"Play you are a church group." (10 children)
This would not be done in one day, perhaps a whole week or more would be necessary. The teacher works with the group to plan and evaluate what would be pantomimed. This would call for many questions on all levels.

3. Interdependence: People depend on others and are responsible to others for their common needs.

We would use the word "depend" for the children to learn, rather than interdependence. The teacher could use the word in different situations before applying it to a unit. "I will depend on you to clean up the room after working time." "I can depend on you to hang up your wraps." "Mary depends on Ann to help her with her boots." "Let each one depend on himself to finish his work." Children will adopt the term and it will be easy for them to use it as a concept when interested in the kindergarten units.

Problem: After a trip to the dairy farm we enjoy our milk lunch at school more than ever before. We recall all the duties of the dairy farmer and list them from the childrens' dictation. We recall also how good milk is for us and its many uses to make cheese, ice cream, butter, etc.

Question: "If milk is so good why doesn't each family have a cow in their garage?"

Problem: To help the children to realize the great number of people that a family depends upon play this game.

Question: "Let's play a game. I'll start it by saying: "My family depends on the milk man for our milk." Now who wants the next turn? Say "My family depends on ______". Think of what you need in your family and finish the sentence. As many take a turn as we wish to do so.

Problem: During the transportation unit the children learned how the workers depend on each other, airplane, boat, train workers. At end of unit use this question:

Question: "You will remember that we talked about how transportation workers depend on each other. What do you think would happen if the astronauts of a space ship decided not to depend on each other or on the land workers?"

4. Rules (Teacher Concept) People live best in groups if they formulate types of behavior and live within a range of sanction.

The childs' interpretation (what I would tell him) would be: People live best in groups if they learn to control their own behavior and obey rules. This concept would start right at the beginning of the year and run throughout the whole year. Safety rules, indoor school rules, outdoor playground rules. Children will enjoy living within rules and using the concept if they themselves have a part in making some of the rules.

Problem: After much discussion on safety in coming to school the children are asked to make out a safety code. Children dictate the rules, the teadher types a copy for each to take home.

Question: "You stand on the corner, watching to see if you may cross. A truck is coming half way down the block. You could hurry across the street as you are already late for school. Would it be best to hurry across the street and try to get to school in time, or to wait for the truck to pass first even though you might be a little late?" Tell us why.

Problem: Recall the rule, "We do not push the person in front of us when we are waiting at the drinking fountain for a drink." Choose two children to come before the group. Tell the group that John knows the rule but Paul does not.

Question: "Who could tell what might happen when Paul stands in line to take a drink?" "Who would like to tell what happens when John stands in line to take a drink?" "Do you think the rule is important?"

Problem: Recall what children know about a "one-way street." "The rule about driving on a "one-way street."

Question: "Let's play that one car forgets the rule." "What happened?" "Why is it important for drivers to remember and obey the rules?"

THINKING

Children even in kindergarten can be helped to analyze their own thinking. It will be enjoyable and helpful to them to realize that by thinking for themselves and by remembering what they have already learned they can answer questions which come to their own minds or which are presented to them by others.

Talk first about "remembering". "I 'remember' this because I heard it."

Help children to recal some ideas previously learned.

Tell children there are two levels of understanding:

1. what you tell them.
2. what they know and can apply.

Identify to the children which ideas you are going to use, and give them a general idea of the kind of question they can expect.

PATTERN FOR THINKING ON APPLICATION LEVEL

Select a situation: This is an example from the kindergarten transportation unit: "Things that we have in our home were transported to us by various transportation means."

During participation in the unit ideas such as these would be emphasized and used by the children:

1. Food, furniture, toys, cars, clothing, are things that we need and use.
2. Some things come from far away. (Use maps and pictures)
3. Transportation media is necessary to bring them to us.
4. These necessary things have to travel on land and water. (map)
5. Train, truck or boat transportation is used most.
6. Air transportation is faster.
7. We have to pay more for articles that are transported by air.

Problem Activity or Question (When culminating unit)
Steps:

Teacher puts on the table some real articles used in homes.

Application Category

Have children name each one. Ex. toaster, chair, doll, bunch of celery, an orange, a carton of milk.

Tell Children: "Take a large paper and your crayolas. Fold your paper to make four sections. Color pictures to show how 4 of these things could come to your home. Tell us later (when you finish) why you think this is the best way for each to travel to your home."

Possible Results or Answers: (Indicating childrens' learnings)

A drawing of a train, truck, airplane, boat, and possible an article (from the table) to identify each.

Telling about their picture, the answers might be:

Representing Learning During Work on Unit.

"Oranges might come by airplane because they grow far away. If they traveled by train or truck they wouldn't be so fresh when we eat them."

"A toaster could come to us by truck because it won't spoil and we wouldn't have to pay so much for it to travel that way."

"This doll could come by boat from Japan because they make lots of toys there and they have to travel over the ocean."

"This chair could come by train in a big baggage car. It takes longer to get it but doesn't cost as much and we might not be in such a hurry to get a chair."

SOCIAL STUDIES IN THE KINDERGARTEN

I. Social Studies in the kindergarten helps children to understand their physical and social surroundings, starting with the home and family, then the school, then branching out into the community.

Through social studies children are led to think about ideas, rather than to memorize unrelated facts.

Basic urges such as childrens' natural curiosity, desire to investigate and to communicate and utilized to good advantage while the child is gaining in first hand knowledge.

A great social need of our times is a feeling of personal responsibility. Social studies helps each child to see his role as a member of one or more groups.

Group experience adds to a child's self-identification, personality development, and social-cultural orientation.

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TEACHING USING CONCEPTS

In teaching Social Studies basic pre-conceived concepts give the teacher goals for teaching and prevent an over-balance of incidental teaching.

Basic concepts provide material for many good questions on the higher levels of thinking.

SOCIAL STUDIES CONCEPTS
KINDERGARTEN

I. People are more alike than different
   A. Physical appearances are more alike than different.
   B. People have the same basic needs and social institutions.
      1. Physical
      2. Psychological
      3. Social
   C. People do differ in interests, capabilities, and ways of doing things.

II. Group Living. All people live and work in groups.
   A. A group is two or more people interacting through a period of time.
   B. People live in different types of groups.
      1. Primary group. Primary groups are small, having face to face interaction and a wider sharing of goals.
      2. Secondary group. Secondary groups are larger, more impersonal; there is more formal interaction, more organization and less wide sharing of goals.
      3. Sub-groups. Within a whole secondary group there may be sub-groups which have noticeable differences.
   C. Most people are members of several groups.
      1. People are born in groups or join them because of interests or needs.
      2. Group membership involves opportunities and responsibilities.
      3. Individual effort is necessary for group success.
   D. The work of society is done through groups.
      1. Groups: provide food and clothing
      2. protect us
      3. provide recreation
      4. provide learning
      5. provide religious opportunities
      6. give us rules
   E. Ways of living differ in different groups
      1. Groups influence: religious practice
      2 family customs
      3. modes of dress
      4. speech
   F. Members of a group identify themselves with the group. (Ethnocentrism)
      1. A feeling of "belonging" to a group is an important personal identification.
      2. Members of a group feel they ought to "fit in" the group.
      3. Members of a group tend to feel they are superior to outsiders.
      4. Ethnocentrism may lead us to misunderstand others or to be prejudiced.

   G. Getting along with others requires that we appreciate and respect group differences.

III. Interdependence. People depend on others and are responsible to others for common needs.

- A. Interdependence within groups. We depend on each other in the groups in which we live. The performing of special assignments in a cooperative manner on the part of everyone makes for efficiency.
- B. Interdependence among groups. Different groups depend on each other.
  - 1. City people depend on the farm.
  - 2. The farm people depend on the city for needs.
  - 3. All groups depend on transportation workers.
- C. Economic interdependence. We need many things that are produced by others.
  - 1. Needs and wants lead people into special occupations.
  - 2. Money is needed to buy needed things.
  - 3. People earn money which is used to buy things from others.
  - 4. What to buy (with available money) necessitates evaluating choices and needs.

IV. Rules. People live best in groups if they formulate types of behavior and live within a range of sanction.

- A. Rules are needed to keep order and protect.
  - 1. Rules are made in the home and school and community for reasons of safety and health.
  - 2. We need rules because what we do and say affect others.
  - 3. Games are more enjoyable when players play fairly and abide by the rules.
- B. Rules are made by the leaders and members of groups.
  - 1. In the family all members decide on rules.
  - 2. In the school the children, teachers, and principal make the rules.
  - 3. In the community the people vote to decide on rules (or laws).
- C. It is necessary for groups to enforce laws and rules and to impose sanctions.
  - 1. Self-control or self-sanction are the most effective methods of social control.
  - 2. If we don't control ourselves, the group must impose sanctions to keep order.

V. Location. Home and school are located a particular distance from each other.

VI. Maps. Maps help people to locate points and see them in relation to their present location.

- A. A diagram of ones' home or school is a type of map.
- B. Maps represent different ways to picture locations on the earth.
- C. Concepts of distance, direction and space are gained from maps.

Group concepts as stated previously will apply to these units in the kindergarten social studeis program:

	Units
I. Likenesses and Differences Concept:	Family School

	Units
II. Group Living Concept:	Family School Dairy Dairy Farm Transportation Library
III. Interdependence Concept:	Family Dairy Farm Dairy Transportation See Science Guide Units Library
IV. Rules Concept:	Family School
V. Location Concept:	Family School Dairy Farm Dairy Library
VI. Maps Concept:	Family School Dairy Farm

FROM BASIC CONCEPTS TO QUESTIONS

Can my kindergarten children share a basic concept and use it in their kindergarten to answer questions on the subject of the concept? I believe they can and that they will enjoy the challenge of this compliment to their intelligence.

First I will try to keep it on the fun level and enjoy with them their success in remembering a concept and using it in different units or activities. While the questions will not always be "fun" questions the children will have fun in trying to answer them and they will surely enjoy the feeling of having "created" the answers from their own thinking.

Just as we do not color or paint the childs' picture for him let us not give him answers to questions which he can create for himself. Just as we do our best to stimulate him to do his best in block construction, molding with clay, or painting at the easel, so let us do our best to stimulate him to do his best thinking. In other words let us include thinking within the bounds of the creative arts. Children can be made aware of their good thinking and this awaremess will help them to not only answer questions better but to ask more questions and try to seek the answers for themselves.

Following herewith are some Basic Teacher Concepts. I will try to show how they can be made understandable to the five or six year old child, and how he can use them in different situations. during the school year.

PRECEDING PAGE MISSING

For example: Having taught about culture and inference, deduction, or the scientific method, ask what students think of the statement that English speaking people must be more intelligent since they have higher standards of living.

Synthesis

Ask students to write a series of questions to determine whether a concept was operating in a given situation. For example: Make a list of questions you would ask to find out whether a culture is dynamic or static.

Ask students to describe a fictional situation in which the concepts would be involved. (Write a story about the life of a family in a subsistence economy.)

Ask students to design a plan and/or apparatus to test a generalization involving a concept or conceptual interrelationships. For example: Plan a study to find the correlation between social class and voting habits in Manitowoc.

Evaluation

Ask whether a concept is good or bad and why. (Is cultural change good?)

Ask which of related concepts is better and why. (Is a subsistence or commercial economy better? Why?)

Ask a question which relates the concept to a standard or value which the student must clarify. (Could a region become too specialized and interdependent? Is a federal system or a centralized system of government more democratic? Is a caliper, micrometer, English ruler, or metric ruler better for measuring the wear of engine parts?)

Series of Questions to Approach Concepts Inductively

Give several situations involving a concept

a. Ask students what elements in the situation are the same. (Interp.)

b. Ask students to form a generalization of all the true situations (Interp.) (This would be an inductive statement of the concept.)

c. Ask students to tell what kind of additional information would be needed to prove the validity of the generalization. (Interp.)

d. Ask students to make a plan for gathering such information and for testing the generalization (Synthesis)

e. Ask them to carry out the plan and to draw conclusions about the validity and degree of probability involved in the generalization. (Analysis if prepared, interpretation if not.)

(For example, apply heat to several kinds of matter so that students can observe their expansion and ask the series of questions about the observed phenomena).

GENERAL STRATEGY FOR APPLICATION, ANALYSIS, SYNTHESIS, AND EVALUATION

A teacher will often ask fifty interpretation questions in a class period. On the higher levels of thought, a common occurrence would be to work on one question for an entire class period or perhaps several periods. The implication is that only a few higher level questions are necessary for a school year. A half-dozen questions in each of the top four categories might provide twenty class periods of thinking.

Opportunities for thinking in the higher categories come more frequently toward the end of the year because they are based on content and processes which should be practiced first on the memory, translation, and interpretation levels. From the beginning of the year, a teacher should prepare students for the higher level questions. This preparation takes the form of instruction in the powerful concepts (content and processes) which are susceptible to use on higher levels of thinking. Plans should also include a tentative schedule for the higher level exercises. For example, a teacher might plan for one such exercise in February, two in March, three in April, and two in May. The number of exercises and the time of instruction would depend on the grade and nature of the concepts. The exercises should be spaced, because higher level thinking is too rich a diet to be partaken of on many successive days.

A special classroom atmosphere must be created to have success with higher levels of thinking. Students must be warned that they are going to practice a different kind of thinking. On a memory or interpretation question, an answer usually comes right away or it doesn't come at all. In higher levels of thought, the progress is slower and usually comes in fits and starts. A student who expects immediate and complete answers to higher level questions will either be shallow in his thinking or will become discouraged by lack of sudden progress. Teachers must warn students to have reasonable expectations.

Before students are ready for higher levels of thinking, they should have some idea of the nature of the processes. Following are basic points for each category of thought:

Application: (Student understanding of the process)

1. It is easier to solve a problem if the teacher tells which ideas apply. However, the teacher cannot follow the student through life to supply this service.

2. Application means using ideas learned previously to solve a problem without being told which ideas are needed to solve the problem.

3. The ideas most useful in solving application questions are those that have the power to explain, classify, or solve in many situations.

Analysis: (Student understanding of the process)

1. Analysis always requires conscious use of a process that has been learned previously.

2. Analysis requires the student to figure out the process that is appropriate to use. (This is the application part of analysis.)

Synthesis: (Student understanding of the process)

1. This form of thinking requires the student to create a new idea.
2. Synthesis thinking proceeds at varying rates. Sometimes ideas come easily, but more often they appear slowly or in a rush after a long period of little progress. Sometimes no good ideas come to mind.
3. Synthesis thinking is painful but must be practiced, because progress comes through creative thought.
4. To be creative is not only to think of a new idea. The idea must also be better in some way.

Evaluation: (Student understanding of the process)

1. In evaluation, a thing, idea, event, or situation is judged.
2. Evaluation is always based on standards or values. To evaluate properly, a student must understand the nature of a value and value judgment.
3. People generally agree on some standards or values, but they disagree on others. Many values are culture decisions.
4. Evaluation requires two steps: first, the appropriate standards are identified; second, the thing, idea, event, or situation to be judged is measured against the standards.
5. It is easy to be superficial in evaluative thinking. A second effort is worthwhile.

When students have mastered the powerful concepts and some idea of the nature of the higher level of thinking to be performed, they are ready for practice. Most higher level exercises should first be performed individually with written responses. This prevents having a few bright students do all the thinking. Initial class discussion on a higher level question is difficult, because students get restless or distracted during the slow periods of creativity. The teacher can emphasize the need to think more deeply by alloting plenty of time for a deep consideration. After the students have individually grappled with a problem and gathered their thoughts, then class discussion is useful. The original consideration of the question should be in class rather than as homework, as this gives the teacher opportunity to clarify, encourage, and reassure - especially the slower students. All students must realize that false starts and temporary frustration are common on higher levels of thinking.

Higher level questions always yield answers that must be subjectively evaluated by the teacher. Scheduling of higher level exercises at spaced intervals prevents an unduly heavy load of subjective evaluation on the teacher at any one time. Difficulties in subjective evaluation lead some teachers to avoid this kind of exercise or ignore it in grading. This, in effect, says to the student that higher level thinking is unimportant. The real goals for the course for the student are set more by the teacher's system of evaluation than by what the teacher proclaims to be important.

MAIN POINTS IN USING THE TAXONOMY OF QUESTIONS

1. Every teacher instructs at certain levels on the taxonomy. It is better to plan the kinds of thinking rather than leave them to chance.
2. All categories of questions can be used at all grade levels.
3. All categories of questions can be used in all subject.
4. Every category offers questions that are easy enough for slow students and challenging enough for the brightest students.
5. Any lesson can be taught at several cognitive levels. The teacher must choose the most appropriate.
6. A good question can be spoiled by poor wording.
7. Some concepts lend themselves to a variety of questions better than other concepts.
8. To promote many kinds of thinking usually requires sources of information other than the textbook.
9. Instruction and evaluation should be on the same cognitive levels.
10. Psychological and social tensions in the classroom can hinder thinking by students. The teacher must promote the climate that makes students feel satisfaction in performing various kinds of thinking.

Section V

SAMPLE COURSES OF STUDY BASED ON THE NEW APPROACH TO CURRICULUM DEVELOPMENT

The following courses of study are progress reports rather than finished products. Sufficient success has been made to demonstrate that this approach to curriculum development promises to have substantial advantages. The courses of study will be refined and tested on an experimental basis during the school year of 1965-66.

Specific directions in which the courses of study need further development are these:

1. Some grades are overloaded with powerful concepts and others have too few. For example, the fifth grade has too many while the second does not have enough.
2. Some concepts prove to be favorites of many teachers on several grade levels and therefore overemphasized in the plans. Examples are "interdependence" and the social need for "rules."
3. Logical longitudinal development of powerful concepts has not been sufficiently refined.
4. A review should be made of subject fields to discover powerful concepts that were missed in the first screening. Those from history, social psychology, and geography appear to be slighted.
5. Some concepts did not prove as powerful in questioning as anticipated. Examples are the content concepts in science and the sociological concepts of human institutions.
6. Plans for introducing the concepts at the beginning of the year generally need improvement. In many cases special instructional materials will be needed.
7. On nearly every grade level, the teachers demonstrated their capacity to compose questions leading students to use powerful

concepts in a variety of categories of thinking. However, these questions are barely a start toward realizing the total possibilities in relating the powerful concepts to the regular curriculum. The approach of defining questions applicable to several units appears to be a good one.

8. The organization of the courses of study seems to be haphazard. The plans for the written description of the curriculum must be improved to depict more clearly the relationships among powerful concepts, levels of thinking, and the textbook curriculum. The position of the latter is most ambiguous in the statements as currently written.
9. The problem in instructing powerful concepts are more difficult in the earlier grades. The students have a limited vocabulary and range of experiences with which to build a concept. The authors of the AAAS science curriculum have achieved considerable success in moving from simple to more complex and in defining ideas in terms of what children know. Much more work is required in the curriculum presented in the following pages to discover better ways to introduce and use concepts on various cognitive levels.

THIRD GRADE

I. PROCESS CONCEPT OF INFERENCE

A. An inference is an explanation of an observed event or situation. Example: "Where there is smoke there is fire."

B. Inferences are based on observations (evidence). Observation of an event or situation (evidence) may support several inferences.

C. The amount of confidence in the truth of an inference is based on the amount and quality of the evidence.

D. Some inferences can be tested by further observation or by experimentation. Some inferences can be checked by appealing to authority.

E. Inference is an important part of everyday thinking. It is also an important part of the scientific method. Hypothesis is one form of inference .

II. Means of Presenting Concept of Inference to Students

A. Inference exercise 1, 2, 3 and 7 in the AAAS materials can be used to introduce the concept of inference. These exercises serve as an excellent prelude to the story of Mike in Chapter one of the text.

B. After the inference exercises the teacher reads or tells the story of Mike up to the point in which the boy wonders how the worms got in the puddle. At this point the teacher asks the students to form inferences as to how the worms got there.

C. When the students have completed their inferences they can read the story to identify Mike's observations and inferences.

D. The story also describes two ways to verify or discredit an inference. This leads to other important process concepts.

III. Description of Questions Using the Concept of Inference

A. The AAAS inference exercises contain good questions on the interpretive level. Some of this thinking also has syntheses tendencies.

B. For further practice or for evaluation the student could be presented another story involving observation and inference. The problem would be to recognize or extract examples of observation as distinguished from inference (interpretation). An appropriate story might well be found in the reading text. This would provide an opportunity for application thinking. The question might be: "In what ways did the hero use the scientific method to solve his problem?"

C. Through the year on almost any topic it would be possible to present two or more inferences based on evidence and ask the students to decide which inference is best supported by the evidence. This is often a form of evaluation. Another way to do this is to give a problem which calls for inference. The answers of students could be collected and some of them dittoed. The students then would choose the strongest and weakest inferences and defend their judgments in the light of the evidence.

D. A problem that calls for inference can offer so many possibilities that the thinking calls for synthesis. Even the example of Mike's problem on how the worms got in the puddle offers enough alternatives to call for a fairly high degree of synthesis.

E. The students could be presented an example of improper inference in either a demonstration or a story. They could be called upon to detect the mistake. This would require interpretation. The thinking could be pushed to application by having the inference made incorrect by the misuse of another science concept. For instance in solving a problem a scientist might make a mistake in using a concept studied earlier on heat or light. The student should recognize that the inference was incorrect because a concept that he studied earlier was misued.

IV. Ideas on Composing Questions Based on Concepts

A. A greater volume of good questions can be compoed by thinking out exercises rather than single questions. Often it is possible to think up exercises that can be used in several units by varying the subject matter.

B. Whenever possible, concepts should be taught and tested on the same cognitive levels. This takes advance planning. It is a good idea to plan the instructional problems and the evaluation problems at the same time.

C. In the earliest stages in developing a unit it is a good idea to describe questions or exercies rather than compose them. The most promising ideas can then be worked into questions and exercises. Of course, any time a good question comes to mind it should be written down.

D. When composing questions a teacher should think of the characteristics of the categories of thinking. What opportunities are there for translation? What opportunities are there for interpretation? etc. This often suggestsquestions or exercises that could be composed.

E. When working with a concept it is useful to think whether ir might operate in other units or other subjects. This often reveals an opportunity for an application questions.

F. When speculating on subject matter in a unit it is a good idea to be sensitive to the operation of values and value judgments. Evaluation thinking is easily neglected.

G. Thinking in the application, analysis, synthesis and evaluation levels is performed much better by students if they know something about the nature of the processes. Teachers must decide how much of this instruction is appropriate at each grade level.

H. Raw, uninterpreted information lends itself to many kinds of questions. If this form of information can be located or made up by the teacher, then questions are easily composed which ask the students to interpret, analyse, or evaluate the information, apply concepts to it or use it to build up a concept.

I. Concepts are sometimes best developed inductively and other times deductively or simply described to the student. In composing a unit the teacher should speculate on the best means of developing the concept.

CONCEPTS AND QUESTIONS

These are some suggestions about the types of questions which might be asked about concepts.

Interpretation

Relations Among Concepts

Ask whether concepts are unrelated, related, similar or different.

Ask what happens with one concept if there is a change in a related concept. (Would there be more or less interdependence if transportation improves?)

Ask how concepts fit together in a pattern of thought. The analogy and scrambled outline may be used.

Interpretation

Relate Concepts to Examples

Give definition of concept. Ask students for examples from their experience.

Give examples of previously identified concepts in writing, oral statement, or picture. Ask students which concept is illustrated.

Ask students to find examples of previously taught concepts in raw materials.

Ask what kind of information would be needed to prove or disapprove the validity of a statement involving the concept. For example: What evidence is needed to prove or disapprove the capitalist idea that man lacks incentive to work if wealth is distributed according to need.

Translation

Rewrite definitions or concepts in your own words.

Draw chart or picture illustrating concepts or relationships among concepts.

Perform a sociodrama that illustrates the operation of an idea.

Application

Having taught the concepts, give the students a question or problem which requires that they select and use the appropriate concept without being instructed to do so. For example: Having taught about specialization and comparative advantage, describe the geography and population of a region and ask students what the economy of the region would be like.

Analysis

After studying a thought process such as inference, classification, observation, prediction, induction, or the scientific method, give the students a problem in which they are expected to consciously use the process without being specifically instructed to do so.

PRECEDING PAGE MISSING

Application, Synthesis, and Evaluation

As the year progresses there are increasing opportunities for higher level questions. Special skill is required of a teacher to have students successfully think in these categories. To prepare for higher levels of thinking, the teacher must describe to the students the nature of the thinking to be attempted. The students must realize that answers don't come as fast or as easily. For ninth-grades, the answers should be written before they are discussed orally. The teacher should provide enough time for thinking and writing, so that the student realizes he is not supposed to be satisfied with the first idea that comes to mind. By having everyone write the answer, the problem is avoided of having only bright students doing the thinking for the whole class. The original consideration of the question should be in class rather than as homework, as this gives the teacher the opportunity to clarify, encourage, and reassure. Students must realize that false starts and temporary frustration are common in higher level thinking.

One way to impress students that higher level thinking is important is to count it heavily in grading. The correction of this kind of exercise is a subjective process but well worth the teacher's time. Higher level questions should be assigned only when the teacher can find time to correct them reasonably promptly. A class discussion of the question immediately after the exercise is turned in is useful in giving the students an initial impression of how well they did.

The following questions all lead to higher levels of thought. Some are easier than others and, except for numbers five and six, all could be presented to the entire class. Naturally some students will do much better than others.

1. A man from a new African nation visits our school. He says his nation is democratic but you wonder if he uses the word in the same way that we do in the United States. Write a list of questions you could ask him about his government that would reveal the extent to which his government is democratic.

2. (Each member of the class is given a copy of the same issue of the Manitowoc Herald-Times.) What insights should a citizenship student have into the articles in the paper dealing with government that might be missed by a person with no formal instruction in the nature of our government?

3. (Play a tape of a radio or TV program treating some phase of government.) What insights should a citizenship student have into this program that might be missed by a person with no formal instruction in the nature of our government?

4. At the beginning of the year you were asked to choose the most important Principle of government and the least important Principle of government. Make this same choice again now that you have studied the Principles in more detail. Defend your answers.

5. Write an essay on this topic: In what kind of a situation is it justifiable to violate a Principle of government?

6. The Principles of government have gradually been changing. What do you believe will be the nature of the Principles of U.S. Government in the year 2000?

7. (Present each student a paperback copy of the book The Animal Farm by George Orwell.) Read this book and write an essay reacting to the story in terms of the ideas studied in citizenship.

8. React to the following excerpts from the Soviet Constitution in terms of the ideas on government that are accepted in the United States.

   Article 6. The land, its mineral wealth, waters, forests, mills, factories, mines, rail, water and air transport, banks, communications, large state-organized agricultural enterprises . . . and the bulk of the dwelling-houses in the cities and industrial localities, are state property . . .

   Article 18-a. Each Union Republic [soviet state] has the right to enter into direct relations with foreign states and to conclude agreements and exchange diplomatic and consular representatives with them.

   Article 20. In the event of divergence between a law of a Union Republic [soviet state] and a law of the Union, the Union law prevails.

   Article 32. The legislative power of the U.S.S.R. is exercised exclusively by the Supreme Soviet of the U.S.S.R.

   Article 35. The Soviet of Nationalities is elected by the citizens of the U.S.S.R. . . .

   Article 70. . . . The Council of Ministers of the U.S.S.R. is appointed by the Supreme Soviet of the U.S.S.R.

   Article 124. In order to ensure to citizens freedom of conscience, the church in the U.S.S.R. is separated from the state, and the school from the church. Freedom of religious worship and freedom of anti-religious propaganda is recognized for all citizens.

   Article 135. Elections of deputies are universal: all citizens of the U.S.S.R. who have reached the age of eighteen, irrespective of race or nationality, sex, religion, education, domicile, social origin, property status or past activities, have the right to vote in the election of deputies . . .

   Every citizen of the U.S.S.R. who has reached the age of twenty-three is eligible for election to the Supreme Soviet of the U.S.S.R., irrespective of race or nationality, sex, religion, education, domicile, social origin, property status or past activities.

   Article 146. The Constitution of the U.S.S.R. may be amended only by decision of the Supreme Soviet of the U.S.S.R. adopted by a majority of not less than two-thirds of the votes in each of its Chambers.

9. Following is a description of an imaginary nation named Alpha. Write an essay reacting to the new government of Alpha in terms of the ideas on government that are endorsed in the United States today.

The imaginary nation of Alpha recently had a revolution that overthrew the dictatorial government of General Napoleon. The crimes of the General were so numerous and cruel that he was condemned to death after a trial that lasted only one-half hour.

The one hundred army officers who led the revolution declared that the new government would be a people's democracy. A legislature made up of two houses was established. The House of Delegates and the House of Peers each has fifty members elected by a majority vote of the adult citizens. Any citizen over twenty-five years of age may run for the House of Delegates, but the membership of the House of Peers must be chosen from the one hundred army officers who led the revolution. A bill may originate in either house, but both houses must approve a bill before it becomes law. The executive powers are assigned to a cabinet which is elected by the legislature from among its members. The legislature also appoints the Supreme Court, which can declare laws unconstitutional.

The newly written Constitution of Alpha defines the rights of the people and the powers of the government. Free speech, free press, free assembly, and free choice of religion are the rights of all citizens. One exception is that nobody may speak or write anything that advocates the return of the political party formerly headed by General Napoleon. A special court tries all political cases.

The nation of Alpha is divided into twenty-five geographical districts called departments. Each department has an elected legislature that may pass laws for the district. However, the national legislature can veto any law passed by the departments that are not in the public interest. Laws passed by the departments are of lesser importance, because the Constitution gives almost all political power to the national government.

Under the government of General Napoleon, the standard of living of the common people in Alpha was low. A few wealthy people owned most of the land and capital goods. One of the first acts of the new legislature was to enact a law that no person could own more than 2,000 acres of land. All owners of more than this minimum were paid a fair price for the land that they gave up. The land was sold to peasants at a low price and with a twenty-five year mortgage.

Under the government of General Napoleon there had been a ten per cent tax on personal income and no corporation taxes. The new government enacted a graduated tax on pesonal income starting with one per cent for income over $500, and up to fifty per cent tax on income over $300,000. A tax was also levied on corporated income but with provisions that encouraged private investment and expansion of industries. Inheritance taxes were low. The legislature is spending a substantial portion of the tax revenue in building schools. Current plans call for six years of free education for all children.

10. Describe a mythical government that observes some Principles of U.S. Government and violates others.

11. An exchange student to Lincoln High School described how a democratic legislature in her nation had argued and argued about what was to be done but had not been able to act. The exchange student then stated, "What we need is a good dictatorship to end talking and solve some of the problems of the people." The teacher of the class at Lincoln smiled wryly and asked this question, "But, would you be willing to give up your freedom to get action?" The exchange student emphatically stated, "Yes." What should the teacher say next?

16. What Principle of government is violated by the function of the electoral college?

17. What Principle of government is illustrated by the presidential news conference?

18. What Principle of government is illustrated when a President gives up a commission in the armed services before he takes office as President?

19. What Principle of government is violated by the system of succession to the Presidency?

20. Which of the following ways of selecting delegates to the presidential nominating convention seems most to illustrate popular sovereignty?
    A. Presidential preference primaries
    B. Selection by party conventions

21. Laws on slander and libel are a violation of what Principle of government?

22. A court decides that the owner of a home must sell it to make room for a public building. What economic Principle is involved?

23. Freedom from self-incrimination illustrates what Principle of government?

24. The method of selecting U.S. Supreme Court Justices is a violation of what Principle of government?

25. A man dies and his will provides that his wife should receive all his possessions. What Principle of government is involved?

26. A court ruling requires a company to give up stock in another company because the combination constitutes a monopoly. What Principle besides judicial protection is involved?

27. The government requires that foods sold to the public must not be harmful to health. What economic Principle is involved?

28. The Federal Trade Commission may stop a company from using misleading advertising. What Principle is involved?

29. All corporations pay high taxes. What Principle of government is involved?

30. The railroad unions may soon go on strike. What Principle of government is involved?

Supreme Court decisions of the past and present provide interesting situations involving the Principles. A good source of ideas is the paperback Leading Constitutional Cases. The U.S. News and World Report periodically summarizes new decision.

Which principles of the U.S. government, besides judicial review and federal supremacy, are illustrated or violated in the following Supreme Court decisions?

1. The Court ruled against a Maryland provision that all public officeholders swear that they believe in God.

2. The Court decided that health officials in Baltimore could inspect private premises without a warrant.

3. The Court declared that a literacy test to determine eligibility for voting in Oklahoma is not unconstitutional if not used to discriminate against Negro voters.

4. The Court ruled that Willie Lee Stewart should have a fourth trial on a murder charge because in the last trial he had been improperly questioned by the prosecutor.

5. The Court declared unconstitutional a Los Angeles law that prevented the distribution of unsigned handbills.

6. The Court decided that Texas and Florida owned the oil rich area extending ten and one-half miles out from their coasts; but Mississippi, Alabama, and Louisiana only owned three miles out.

Current events are full of examples of the operation of the Principles. During the unit on federal government, students are assigned to clip articles from newspapers showing the operation of the Principles. In any evening paper it is possible to find a half-dozen or more Principles in operation. Accompanying each clipping, the student must identify the Principle involved and describe the ways in which it is illustrated or violated. Finding articles requires a little more complicated interpretation than simply identifying Principles in situations presented by the teacher.

In addition to providing good practice in using the Principles, this assignment gives the teacher an abundant source of situations to use in class discussion and tests.

Unit on Local Government

For each question identify one Principle of government involved and tell whether it is illustrated or violated.

1. The Mayor appoints the Council men to the standing committees of the Council. (Not separation of powers)
2. The City Treasurer must keep an accurate written record of financial transactions of the city.
3. The City Clerk, City Assessor, City Planner, Building Inspector, Plumbing Inspector, Relief Director, as well as others are appointed by the Common Council.
4. "The Mayor shall be the chief executive officer."
5. The Mayor has the power to veto acts of the Common Council.
6. "Proceedings of the Common Council shall be published in the newspaper . . ."
7. The Board of Education consists of seven members elected from the city at large for a three-year term.
8. In the general elections (not primaries) there shall not be more than two official candidates for each office.
9. Almost every adult in Manitowoc is eligible to run for Mayor or Council.
10. A man accused of a crime cannot be forced to testify against himself.
11. The Courts have held that federal minimum wage laws can be passed by Congress on the basis of the power of Congress to regulate interstate commerce. (Not judicial review or judicial protections)
12. Police may forbid the use of a vehicle on the road if it has no muffler. (Not freedom to travel)
13. If both the federal government and the Wisconsin government had a civil rights law, and the laws conflicted, we in Manitowoc would follow the federal law.
14. Corporations in Manitowoc must pay taxes on their income. (Not private ownership)
15. A strike was recently settled in Manitowoc.
16. The power to govern is divided between the federal and state governments. Cities get their power to govern on local matters from the state. (Not federal supremacy nor states' rights)
17. No official in the Manitowoc government is on active duty in the armed services.

18. People who are visiting Manitowoc need not report ehir presence to any government official.

19. Many kinds of businesses may be started in Manitowoc without getting permission from the government.

20. A person in Manitowoc may will all his possessions to a church. (Not secular government)

21. Every child who resides in Manitowoc may attend public schools whether or not his parents pay taxes.

22. The city of Manitowoc operates a cemetery.

23. No bicycle may be legally operated in the city of Manitowoc without being registered and licensed.

24. "The driver of each taxicab shall wear a cap at all times while operating or in charge of a taxicab, with the name of the owner of said taxicab legibly printed thereon."

25. A store must get a license to have a "closing out" sale.

26. Letters to the editor may be printed in the newspaper even if they do criticize the city government.

27. If a man signs a contract to work for a certain business for a specified period of time and if the man leaves the job before the time has expired, then he may be taken to court. (Not free enterprise)

28. A city law might be declared unconstitutional by the U.S. Supreme Court. (Not judicial protection or federal supremacy or separation of powers)

29. ". . . it is hereby made the duty of the owner, occupant or agent of every theater . . . in said city , . . to provide such theater with sufficient number of spittoons or cuspidors and 'efficiently place the same.'"

30. In an area zoned as AA Residence, no building shall exceed thirty-five feet or two stories in height.

31. Most students in this room will be eligible to run for the City Council of Manitowoc in a few years.

32. Punishments in Manitowoc courts may not be cruel or unusual.

PRECEDING PAGE(S) MISSING

7. A student studying how ordinances are passed in Manitowoc attended a City Council meeting but was told she might not visit a committee meeting in which the proposal was considered. Later the decision was reversed and she was admitted. What Principle was involved?
8. The Congress of the United States publishes a transcript of everything said on the floor of Congress. What Principle is involved?
9. Parents who send students to public schools do not pay any more taxes than those who have no children or who send them to private schools. What Principle is involved?
10. The military forces get no money for equipment or personnel except that which is approved by Congress. What Principle is involved?

The teacher can develop the idea that the situations described in the questions above may either show an "illustration" or a "violation" of a Principle. The same situations can be described again but this time the student tells whether the Principle is "illustrated" or "violated." This differentiation is surprisingly difficult for some students.

Experience has shown that four ground rules are necessary in identifying the Principles operating in political events or situations. These should be made clear to students:

1. The student must classify on the basis of the information that is given in the problem - not on the basis of other information he may know or suspect to be true. For example, suppose a student is to determine the Principle operating in the following situation: "The President is the Commander-in-Chief of the Armed Forces." The student would classify incorrectly if he said that the Principle involved was "Citizens elect government officials." He might argue that the answer is correct because the President is elected. The teacher's response is that classification must be based on the information given in the problem. The statement in the problem does not say that the President is elected.
2. The student must classify at the most specific level possible. Answers calling for classification must always identify a subheading if there is one. This is only a problem with Principles One and Two, because the others have no subheadings.
3. Many situations present examples of the operation of several Principles. Some questions call for listing all Principles that are involved, while other questions may ask for only one. The student must be careful to follow directions.
4. The operation of the Principles is so widespread that it is inevitable students will occasionally think of correct answers not anticipated by the teacher. A good general rule is that the student should always have an opportunity to justify another answer. (This is best done by the student in writing so as not to waste class time on an individual problem and also to discourage quibbling.)

Following is an example of a quiz that might be used in the process of introducing the Principles:

Fill in the outline with the names of the Principles of U.S. Government. The answers in brackets need not be in any special order.

I.
  A.
  B.
  C.
  D.
  E.
  F.
  G.
II.
  A.
    1.
    2.
    3.
  B.
  C.
    1.
    2.
    3.
    4.
    5.

Directions: For questions 21 to 30, give the name of one Principle that is involved in each situation.

21. A man accused of a crime must be provided an attorney if he cannot afford one.
22. A man who took his family on a trip to the World's Fair needed only his wife's permission to go.
23. The UAW and Ford Motor Company are currently negotiating a contract on wages, hours, and working conditions.
24. Last night the minutes of Monday night's City Council meeting were published in the paper.
25. A man who didn't like an action of the City Council called the Voice of the People to complain.
26. A man who becomes ill and therefore loses his job is given financial assistance by the City of Manitowoc.
27. In November, a governor will be elected in Wisconsin.
28. Whoever gets the most votes in the two-man race for governor will win the election.
29. A man started a company to produce left-handed pencils.
30. A man distributed religious literature on the corner of Eighth and Franklin.

(A similar quiz could be given on the remaining Principles.)

After introducing all Principles, questions such as the following point out some of the important relationships among them:

1. What three Principles deal with the relationships among the legislative, executive, and judicial branches of the government?
2. What three Principles deal with the relationship between the states and the national government?
3. What Principles are based on confidence that men generally can be trusted to use power wisely?
4. What Principles are based on mistrust of man's capacity to use power properly?
5. What Principle partly contradicts the idea of limited government?

6. The Principle of the "Check and balance system" implies the operation of what other Principle?
7. The Principle of "Judicial review" is an example of what other Principle?

Capable students could be assigned to write a paper or prepare an oral report on the historical roots of one of the following:

1. Universal adult suffrage
2. Free public education
3. Protection of the rights of expression
4. Right to collective bargaining between management and labor
5. Protection against destitution
6. States' rights.

A good translation problem is to assign students to draw a diagram or pictures depicting the meaning of a Principle. Pairs or trios of students can be assigned to work out sociodramas depicting the operation of Principles. The class can identify the Principles involved and tell whether they are being illustrated or violated.

An examination on the Principles at this point could include the memory of the names of all Principles plus new questions relating the Principles to specific situations. In addition, a question leaning toward application could be developed describing the parliamentary system and brand of socialism in England. Students would be asked to react to the English pattern in the light of our Principles of government. A follow-up question would ask students to determine whether the Principles of U.S. government can serve as a definition of democracy.

An evaluation question would be to select the least important Principle and defend one's choice. To prepare for this question, it might be wise to have a class discussion on the most important Principle. (Perhaps this question is premature, because student comprehension of the Principles is still not deep.)

Unit on National Government

The textbook for the course in citizenship is Understanding Our Government by George Bruntz. Nine chapters describe the foundations of our national government, the legislature, the executive department, and the courts. The first part of the unit deals with the structure of the national government. The number of possible interpretation questions dealing with the Principles of Government is almost endless.

The first source of subject matter for questions is the United States Constitution. A second source is the description of government in the textbook. Supreme Court decisions are a third source, while the final source is in current events.

In the following questions, students must identify the Principle or Principles of government involved in a quotation from the Constitution:

1. "No person shall be a senator who shall not have attained to the age of thirty years, and been nine years a citizen of the United States, and who shall not, when elected, be an inhabitant of the State for which he shall be chosen."
2. "Each house shall keep a journal of its proceedings, and from time to time publish the same. . . ."
3. ". . . no religious test shall ever be required as a qualification to any office or public trust under the United States."
4. "The right of the people to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures, shall not be violated . . ."
5. "In all criminal prosecutions, the accused shall enjoy the right to a speedy and public trial by an impartial jury . . ."
6. ". . . no State, without its consent, shall be deprived of its equal suffrage in the Senate."
7. "The House of Representatives shall be composed of members chosen every second year by the people of the several States . . ."
8. "Congress shall make no law . . . abridging the freedom . . . of the press."
9. "No soldier shall, in time of peace, be quartered in any house, without the consent of the owner . . ."
10. "The citizens of each State shall be entitled to all privileges and immunities of citizens in the several states."

The next series of questions are based on ideas developed in the textbook:

1. The Declaration of Independence says in one part that governments "derive their just power from the consent of the governed." Which Principle is best illustrated by the statement?
   A. Popular sovereignty
   B. Limited government
   C. Judicial review
   D. States' rights

2. Under the Articles of Confederation the states had almost all the power and the national government very little. Which Principle of government was operating more strongly under the Articles of Confederation than it is operating today?

3. Under the Articles of Confederation the national legislature and executive were combined. What Principle of U.S. government was violated by this system?

4. As the Constitution was originally drawn the method of choosing the members of which of the two houses in Congress best illustrated the Principle of popular sovereignty?

5. The President of the U.S. appoints many officials but the Senate approves the appointments. Which Principles of government is involved?

6. Your book makes this statement about the convention that composed the U.S. Constitution: "The meetings were held behind closed doors and the delegates were pledged to secrecy. This was wise, since it enabled the delegates to reach compromises on controversial matters without excitement and public pressures." What Principles of government was violated by the procedure?

7. Both the national and state governments have the right to pass laws on civil rights, but when these laws contradict the national laws must be followed. Which Principle is involved?

8. The Constitution says that all legislative powers go to Congress. Which Principle is involved?

10. What Principle (besides judicial protection) was illustrated by the famous court case of Marbury vs. Madison?

11. A person is eligible to run for the Senate who is thirty years old, nine years a citizen, and a resident of the state in which he runs. What Principle is involved?

12. Which Principle is based on the idea that if you give men too much power they are likely to misuse it?

13. Name a Principle that shows trust in the wisdom of the common man in our society.

14. Name a Principle that is strengthened by insuring that Negroes in the South have the right to vote.

15. What Principle of government is illustrated by the President's veto power?

DEFINING THE TWO-STORIED CURRICULUM IN TERMS OF POWERFUL CONCEPTS AND THE TAXONOMY OF QUESTIONS

The final operation in developing a two-storied curriculum was in defining courses of study in terms of powerful concepts, illustrative subject matter, and categories of questions. A suggested format for the statement of a course of study was presented to the teachers with the invitation to be as inventive as they wished.

It is made up of five parts:

1. A definition of the powerful concepts assigned to the grade level in a manner meaningful to the teacher
2. A statement of objectives defining the appropriate level of mastery of the concepts
3. A statement of general strategy for teaching the concepts to students
4. A specific plan for introducing the principles to students
5. Specific plans for using the principles in the various units

To assist the workshop participants in defining their courses of study, four papers were presented to them. The first was a portion of a ninth-grade course of study organized according to the five suggested parts described in the previous paragraph. The second paper demonstrated a slightly different organization for describing the instruction of the process of inference in the third grade. Next was a review entitled "Concepts and Questions" describing possible kinds of questions in each category of thinking. The last dealt with particular problems in the higher categories of thinking and was entitled "General Strategy for Application, Analysis, Synthesis, and Evaluation."

A PLAN TO INTEGRATE THE PRINCIPLES OF U.S. GOVERNMENT
INTO NINTH-GRADE CITIZENSHIP

Objective: The Principles of U.S. Government can be a useful framework of ideas for any person to employ in fulfilling his obligations of citizenship. One objective of the ninth-grade citizenship course is to lead students to understand the Principles and to be able to use them intelligently. Besides being able to see the operation of the Principles in national, state, and local government, students should perceive the following functions:

A. The Principles help citizens to know their political and economic rights.
B. The Principles form a foundation for learning about our government and explaining it to others.
C. The Principles are useful in helping citizens make decisions on political and economic issues.
D. The principles form a foundation for waging ideological warfare against opponents of democracy.

Full understanding of the Principles also requires an understanding of their limitations:

A. The Principles are not fixed and final; they are in a state of slow growth and refinement. (The direction and extent of growth is a matter of controversy among our citizens.)
B. The existence of these ideas in our history is not enough protection against unwarranted erosion and attack. The Principles give protection only to the extent that citizens know and defend them. (The contradiction between this point and the previous one is one of the most difficult problems facing U.S. citizens.)
C. Although the Principles help us in making daily political and economic decisions, they do not lead to easy mechanical answers to our problems. The Principles are general and therefore often difficult to apply to specific situations. The Principles are in part contradictory and in some respects controversial among good, loyal U.S. citizens. In spite of these handicaps, they are highly useful in dealing with current problems.

General Strategy: The objective listed above is not likely to be realized simply by telling students that the Principles are important. The strategy is to present the definitions of the Principles and then lead the students to discover their usefulness and limitations by applying them to numerous problems on the national, state, and local levels. From the perspective of the taxonomy, students learn the ideas first on a memory level and then interpret them throughout the year in preparation for culmination in application, synthesis, and evaluation. During the long period of interpretation, there should be reference to the Principles on an average of two or three times a week in class discussion or assignments. Every major test should include a section dealing with the Principles. During this time, students are inductively building a more mature understanding of the Principles which they are expected to demonstrate toward the end of the year on higher levels of thought. (There will be some higher level thinking with the Principles during the year, but the main experiences above interpretation come near the end.)

Introducing the Principles: There are many possible ways to lead into the subject of the Principles. One approach for the assignment preceding the introduction of the Principles is to ask students to gather five impromptu oral definitions of democracy. Three could be from students and two from adults. The students gathering the definitions must take notes and not ask anyone unless the situation permits at least four or five minutes of conversation. In class, students are asked to choose their strongest and weakest definitions. Some could be read to the class. The students determine whether the definitions are generally better from adults or from students or whether they are about the same.

These definitions should be saved until after students study the Principles of U.S. Government; then each student can study his definitions to see which ones include the most Principles.

The next assignments can ask students to memorize the titles of the Principles and study the sheets to get the general meaning of each. (Principle One the first day; Principle Two the second; and Principles Three through Nine on the third.) In class during these days the students are instructed according to this general pattern:

A. Drill students on the titles of the Principles.
B. Ask students to define any that are not obvious. For example, "Citizens elect government officials" is obvious in meaning but "Universal adult suffrage" is not. At this point students are only expected to know as much about the definitions as is included on the sheet.
C. Present students simple questions in which they are asked to use the definitions.

Examples of questions for Principle One:

1. Which four subheadings under "popular sovereignty" deal with elections?
2. What Principle was involved when women were given the right to vote in this country?
3. Was the Principle of "Majority rule" altered by giving women the right to vote?
4. Would it be possible for a nation to abide by the Principle of "citizens elect government officials" and not the Principles of "Universal adult suffrage"?
5. There have been cases in our history where one of the two presidential candidates got more popular votes than the other but lost the election. What Principle of government was involved in the situation?
6. The fact that the parents of all or at least almost all students in the room are eligible to run for President involves what Principle?

LIVING THINGS

KINDERGARTEN	FIRST GRADE	SECOND GRADE	THIRD GRADE
1. Recognition of a variety of living things. 2. There are similarities and differences between plants and animals.	1. Living things differ from non-living things. 2. Living things grow. a. Needs for growth b. Difference between growth of plants and animals. 3. Living things respong to stimuli such as heat, light, touch.	1. Recognition of some classes of plants and animals: a. Trees, grasses, etc. b. Insects, fish, man 2. Plants and animals live in different environments. (Balanced aquariums)	1. Review precious concepts. 2. Plants and animals adapt themselves to their environment. 3. A characteristic life is usually found in a characteristic environment.

FOURTH GRADE	FIFTH GRADE	SIXTH GRADE
1. The cell is the basic unit of structure of all living things. 2. Different classes of foods are needed for the growth and repair of living things. 3. Green plants manufacture their own food.	1. Review cellular structure and uses of food by living things. 2. Living things vary in structure from simple to complex. 3. Living things are classified on the basis of similar structure. 4. Simple living things may cause diseases in plants and animals. 5. The human body is a complex living thing. 6. Living things need to be conserved.	1. Review classifications. 2. All living things re-produce their own kind. 3. Some forms of living things have disappeared from the earth. 4. New varieties of living things can be developed.

THE UNIVERSE (Space)

KINDERGARTEN	FIRST GRADE	SECOND GRADE	THIRD GRADE
1. Recognition of concepts of earth, sky, moon, sun and stars. 2. Recognition of a. day and night b. seasons c. climate and weather	1. Earth a. Spherical sha b. Moves on a tipped axis c. Moves around sun 2. Moon a. Reflects light like a mirror	1. Earth a. Review concepts of first grade b. Air encircles the earth 1. Wind is moving air 2. Water evaporates into air 3. Formation of clouds, rain and snow	1. Earth a. Size of earth b. Gravitational pull of earth c. Poles of the earth 2. Sun a. Comparative size of sun and earth b. Distance to sun c. Effect of sun on earth

FOURTH GRADE	FIFTH GRADE	SIXTH GRADE
1. The motion of the earth produces important phenomena. a. Rotation of earth causes day and night. b. Revolution of earth causes our seasons. c. Eclipses 2. Our solar system is only a small portion of the universe. a. The earth is a part of the solar system.	1. Review: rotation of earth causes day and night. 2. Rotation of earth gives direction to winds. 3. Review: revolution of earth causes seasons. 4. Climate results from revolution of earth. a. Direct and slanting rays of the sun causes differences in temperature of earth. (Application of energy concept-radiant energy is converted into heat when absorbed) 5. Time is accurately determined by measuring the position of sun's rays. 6. Man is exploring space (Universe)	1. The relationship between atmospheric conditions and weather. 2. Our universe is a vast space. 3. The paths and movements of the heavenly bodies can be accurately determined. 4. The paths of all heavenly bodies are determined by the balancing of the forces of gravity and circular motion (Centrifugal force) 5. Man's exploration of space deals with the application of the laws of gravity and motion. 6. There are several theories about the formation of the earth.

PROCESS CONCEPTS

Observation

Kdgn. - Grades 1-2-3

I. Process
   - A. Observe objects
   - B. Observe phenomena
   - C. Use all of the senses

II. Skills to develop
   - A. Make accurate observation
   - B. Make detailed observation
   - C. Be willing to check observations
   - D. Report only observations perceived by any of the senses

Grades 4-5-6

I. Process
   - A. Extend the senses by using instruments
   - B. Make repeated observations (Results should be the same each time the conditions are the same.)
   - C. Discover factors affecting the accuracy of observation (Light, angle of observation, keenness of senses, emotions, distance)
   - D. Record observations

II. Skills to develop
   - A. Use instruments for making accurate, detailed observations
   - B. Be willing to make repeated observations
   - C. Recognize factors affecting accuracy of observation
     - 1. Limitation of our senses
     - 2. Prejudice and emotions
   - D. Make adequate data tables, graphs, diagrams, etc., for recording data

III. Use of process →
   - A. For identifying objects and phenomena
   - B. For recognizing similarities and differences as an aid to classifying and grouping
   - C. For recognizing properties of matter
   - D. For finding the unusual in the usual

Prediction

Grade III

I. Meaning of Prediction →
   - A. Understand that repeated, accurate observations sometimes show events happening with regularity and therefore being predictable

Grade IV

Grade III	Grade IV
II. Valid and invalid predictions	→
A. Understand that predictions have greater validity if the information being used is reliable and the events occur with some degree of regularity	
B. Know factors that enter in to distort the regularity of events - making prediction less valid	→
C. Know that predictions are invalid if based on superstitions	→
III. Skills to develop	
A. Consider available information and determine if it is reliable and if event is occurring with enough regularity to make a prediction	→
B. Distinguish between valid and invalid predictions	→
C. Recognize dangers involved in making predictions	→
D. Use graphs as an aid to predicting	→

Space/Time

Grades II - III	Grade IV
I. Process	
A. Develop concepts of space	→
1. Manipulate objects	
2. Visualize objects and shapes	
3. Measure distance	
4. Recognize curved lines, straight lines, surfaces, angles	
5. Sense direction	
B. Develop concepts of time on clock and calendar	→

Inference

Grade III	Grade IV
I. Process skills	
A. Recognize as inferences something which follows as probably true because of its connection with some known fact	→
B. Distinguish between inference and observation	→
C. Make one or more inferences based on observations and tell how the evidence supports the inference	→

Grade IV

I. Process skills
   A. Recognize inferences supported by strong evidence and inferences supported by weak evidence
   B. Judge which of several inferences is best supported by the evidence
   C. Be willing and able to consult authorities or to experiment to check inferences

Controlled Experiment

Grade V - Interpretation level
Grade VI - Interpretation and application level

I. Recognition and statement of problem
   A. Recognize a situation in which a problem exists. Distinguish between trivial and important questions
   B. See the possible relationships among the parts of the situation
   C. Pick out the single, major idea of the problem
   D. State the problem in a simple, clear, and concise manner - including what one plans to do
   E. State the problem within appropriate level of understanding

II. Hypothesizing (higher level inference)
   A. Recognize hypotheses as only possible answers to problems - "an educated guess"
   B. State hypothesis in a manner suitable for testing or experimenting
   C. State the hypothesis clearly so that it can be accepted, rejected, or used for further study
   D. Recognize that several alternative hypotheses are often possible as solutions

III. Control experiment
   A. In a scientific experiment conditions can be changed, controlled and repeated
   B. Two parts to a controlled experiment aid in comparing one factor at a time
      1. Control part
         a. All conditions are kept the same as they were before the experiment started
      2. Experimental part
         a. One condition is different from the control and is called the variable. This is necessary in order to prove that whatever happens does so because of this variable factor rather than because of several factors
         b. All other factors must be the same
   C. The use of a control in an experiment makes errors less likely

IV. Keeping records
   A. Write a detailed description of the procedure so that another person could repeat the experiment at any time
   B. Plan data tables for recording important data
   C. Distinguish between relevant and irrelevant data
   D. Construct graphs, tables, diagrams, averages, percentages etc. to aid in recording data

V. Interpreting data (observations)
   A. Examine data for relationships among the parts
   B. Use data to help answer the original problem
   C. Compare data with data obtained by others
   D. Recognize the possibility of error and evaluate and question the results of the experiment
   E. Withhold answer to the problem being tested if data does not warrant an answer

VI. Drawing conclusions (answer to problem)
   A. The conclusion is a statement os what the experiment showed, based on the observations made
   B. Recognize the possibility of not being able to draw a valid conclusion from observations made
   C. Avoid making common errors in drawing conclusions
      1. Jumping to a conclusion based on an isolated fact
      2. Jumping to a conclusion based on insufficient evidence
      3. Assuming that if two things occur together that one must be the cause of the other
      4. Making a conclusion too broad
      5. Drawing a conclusion which does not reflect the exact conditions of the experiment

Grade V
Interpretation level

I. Recognition of a controlled experiment (stories)
II. Recogrition of the variables and constants in experiments
III. Skill in executing a planned experiment

Grade VI
Interpretation and Application level

I. Primary purpose of an experiment is to secure evidence which might help to answer a problem for which the student does not know the answer
II. Opportunity given to plan the experiment as well as to execute it (prerequisite - an awareness of the elements of the process concepts)
III. An evaluation and a questioning of the results of the experiment should be undertaken

SIXTH GRADE

Human evolution, cultural evolution, culture, cultural change.
Man as a cultural product
Behavior as culturally oriented (viewpoint of anthropology)
Democracy, variations in government (popular sovereignty, limited government)
Social organization (structure, process, control)

SEVENTH GRADE

Shares concepts of sixth grade with emphasis on application
Economically and technically underdeveloped nations.
International relations
Use of natural resources
Nature of values
Application

EIGHTH GRADE

Geographic power structure
Party system
Change in government
Cultural change

NINTH GRADE

Principles of U.S. government
Liberal and conservative philosophies
Sociological approach to government (viewpoint of sociology)
Structure of local, state, and national government

TENTH GRADE

Historiography
Cultural change

ELEVENTH GRADE

Dynamic relationships
Resultants (a real location of resources)
Microeconomics vs. macroeconomics
Cultural change

As factors in U.S. history

TWELFTH GRADE

Problems, policies, conflicts
Social processes
Political processes
International relations

ENERGY

KINDERGARTEN	FIRST GRADE	SECOND GRADE	THIRD GRADE
1. Concepts of push, pull and lift. 2. Energy can be used to move things. Magnetism Machines 3. Wheels make it easier to move things.	1. Review push and pull. 2. Concepts of up and down. 3. More energy is required to move heavy objects than to move light objects.	1. Review meaning of word energy. 2. Energy used to move things: a. Wheels b. Magnets c. Air d. Water	1. Meaning of work (Movement of matter) 2. Recognition of energy of the body. 3. Summarize and further develop energy being used to move things: a. air (moving) b. water (moving) c. steam d. electricity e. magnetism

FOURTH GRADE	FIFTH GRADE	SIXTH GRADE
1. Review meaning of energy and work. 2. Recognition of forms of energy. 3. Energy can be transformed: a. Mechanical energy to heat b. Mechanical energy to electricity c. Electrical energy to heat d. Electrical energy to light e. Electrical energy to motion 4. Electricity used to do work.	1. Review meaning of words energy and work. 2. Forms of energy: heat, light, electical, mechanical, chemical, sound, atomic, etc. 3. Transformation of energy from one form to another. a. Mechanical to electrical b. (Principale of generation) b. Radiant energy to heat when it is absorbed c. Chemical energy of food to heat. 4. The application or withdrawal of energy increases or decreases molecular activity.	1. Review forms of energy and transformation of energy. 2. Transformation of energy: a. Light energy to chemical (food making in plants) b. Chemical energy to heat. (fuels and burning of food in the body) 3. Law of inertia 4. Almost all of the energy upon the earth comes directly from the sun. a. photosynthesis b. fuels 5. Simple machines can be used to make work easier.

MATTER

KINDERGARTEN	FIRST GRADE	SECOND GRADE	THIRD GRADE
1. Varieties of matter a. Solids b. Liquids	1. Different kinds of matter have different characteristics. (Properties) 2. All matter has weight and takes up space.	1. Solids, liquids, and gases differ as to whether or not they have definite shapes and definite volumes.	1. Matter is made up of particles (molecules) which are in constant motion. 2. Molecular structure helps to explain a. changes of state b. evaporation and condensation c. melting and freezing 3. All matter is affected by gravity.

FOURTH GRADE	FIFTH GRADE	SIXTH GRADE
1. Use of different kinds of matter is determined by its properties. 2. Molecular structure and motion helps to explain: a. expansion b. contraction	1. Review meaning of matter and properties of matter. 2. Molecular structure and motion helps to explain: a. dissolving b. compression 3. Matter consists of elements, compounds, and mixture. 4. Matter under goes chemical and physical changes.	1. Review molecular theory and processes explained in terms of molecular structure and motion. 2. Add new processes to above a. Differences between solids, liquids, and gases b. Adhesion and cohesion c. Surface tensions 3. Use of simple symbols and formulas in relation to elements, compounds, and chemical changes. 4. The atom is the unit of structure of all matter.

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SCIENCE

III. Content Concepts

A. Energy

1. Energy--the ability to do work, can be neither created or destroyed.

2. There are many different forms of energy

    a. Mechanical
    b. Electrical
    c. Heat
    d. Radiant
    e. Light
    f. Sound
    g. Atomic

3. Energy can be changed from one form to another

    a. Mechanical to heat -- rub two sticks together
    b. Mechanical to electrical -- move a magnet through a coil of wire
    c. Heat to chemical -- apply heat to iron and sulphur (iron sulphide)
    d. Light to chemical -- fading of cloth
    e. Electrical to light -- light bulb
    f. Light to electrical -- photo-electric cell
    g. Electrical to heat -- flatiron
    h. Electrical to mechanical -- electric motor
    i. Mechanical to sound --squeaking wheel
    j. Electrical to sound -- radio
    k. Radiant to heat and light - sun's energy

4. Energy is needed to start or stop a body in motion. (Law of inertia)

    a. Auto engine and gasoline
    b. Brakes

5. The application or withdrawal of energy increases or decreases molecular activity.

    a. Results in a change of state--liquid to gas, water to ice.
    b. Explains expansion and contractions of metals.

6. Almost all of the energy upon the earth comes directly or indirectly from the sun.

    a. The energy for manufacturing food in green plants (photosynthesis) comes from the sun.
    b. Almost all of the fuels upon the earth were produced from the green plant (wood, coal, oil, natural gas)

B. Matter

1. All matter is made up of fundamental particles and has weight and occupies space. Matter may exist in solid, liquid or gaseous state.

2. Each type of matter has definite properties for which man finds many uses.

   Examples
   a. Rubber is an insulator: also elastic
   b. Copper is a good electrical conductor
   c. Carbon dioxide - a non combustible gas
   d. Helium - lighter than air: noncombustible
   e. Gasoline - a liquid - very combustible
   f. Alcohol - an excellent sterilizing agent

3. Matter - made up of molecules which are constant motion. This motion is responsible for heat and temperature.

   a. Expansion due to increased molecular activity.
   b. Contraction due to decreased molecular activity.

4. Molecular Activity of matter helps to explain --

   a. The states of matter - solid - liquid - gas
   b. Changes from one state to another
      1. Ice to water to water vapor
   c. Surface tension
      1. Cohesion - sticking together of like molecules
      2. Adhesion - sticking together of unlike molecules
   d. Compression, expansion, contraction
   e. Dissolving of a solid in a liquid
   f. Diffusion of several gases

5. All matter is affected by gravity.

6. Matter consists of elements, compounds, and mixtures.

   a. An element is a chemical substance which cannot be broken down into any smaller substance and still retain the characteristics of that element.
      1. There are over 100 elements (92 natural and approximately 10 man made) oxygen, hydrogen, iron, carbon, etc.
   b. A compound consists of two or more elements combined together chemically.
      1. There are countless chemical compounds in existance with new ones being made everyday. Water, carbon dioxide, iron oxide, etc.

7. Matter may be changed physically and chemically without changing the original amount of matter. Matter is neither created or destroyed in a chemical change.
   a. Physical change
      1. Breaking up wood into smaller pieces
      2. Changing ice to water
   b. Chemical change
      1. Iron and sulphur equal iron sulphide
      2. Burning of wood

8. The basic unit of all matter is the atom.
    - a. The atom is the source of nuclear energy
    - b. New atoms can be created

9. The total sum of matter and energy in the universe remains constant.
    - a. In a nuclear reaction some matter and energy transformation may occour. However the net gain or loss of matter and energy for the whole remains the same.

C. Interrelationships among matter, energy and living things.

1. All living things are affected by factors in their environment. (Temperature and seasonal change, rainfall, humidity and water, winds and air currents, light, soil conditions, food supply, pressure, chemical composition, etc.)

2. All living things depend on their environment for the conditions of life.

3. A characteristic life is usually found in a characteristic environment.

4. Living things use matter from their environment and return it to their environment.
    - a. Oxygen - carbon dioxide cycle (balanced aquarium)
    - b. Plant - animal cycle

5. The radiant energy from the sun is necessary to the maintenance and growth of all living things.
    - a. Plants - food making
    - b. Ultra violet ray aids in producing Vitamin D

6. Living things are adapted by structure and function to their environment. The more perfectly a plant or animal is adapted to its environment, the better its chance to survive.

7. A state of good health aids living things in making the best adaptations to their environment.

8. Man needs to conserve his natural resources.

D. Heredity and Environment

1. All living things reproduce their own kind.

2. Related living things reproduce in similar ways.

3. Cell division is the basic principle involved in all forms of reproduction.

4. Traits are transmitted from one generation to another by genes in the reproductive cells.

5. Hereditary traits are transmitted according to very definit laws:

    a. Unit characters are transmitted independently (a gene for each trait).
    b. Certain unit characters are dominant over others in hybrids.
    c. There is a segregation of unit characters at the time of the formation of the eggs and sperm cells.

6. Variations occur from generation to generation in the same kind of organism due either to heredity or environment.

7. Man can effect changes in the characteristics of living things by controlling their heredity and/or their environment.

    a. Artificial selection
    b. Hybridization
    c. Mutations

E. Continumity and Change

1. All living and no living things exist in different forms.

2. All forms of matter can be classified because of their related structure.

3. As environments change, both living and no living things change

    a. Living things are evolving
    b. Environmental factors such as changes in heat, pressure and time produce changes in no living substances.
    c. Weather changes
    d. Changes in earth's crust

4. Some facts of life have disappeared from the earth.

5. Changes in the genetic pattern of living things may bring about new forms. (mutations)

6. All living things are constantly changing.

F. Space - The Universe

1. The motion of the earth and its moon produces important phenomena.

    a. Rotation of the earth causes day and night and also gives direction to our winds.
    b. Revolution of the earth causes our seasons and resulting climate.
    c. Production of eclipses and tides.
    d. Time is accurately determined by measuring the position of the sun's rays.

2. Our solar system is only a small portion of the universe

3. The path and movement of heavenly bodies can be accurately determined.

4. The paths of all heavenly bodies are determined by the balancing of the forces of gravity and circular motion (centrifugal force)
    a. All matter exerts a gravitational force determined by the mass of the bodies and the distance between.
    b. Centrifugal force is the tendency of a rotating force to move outward from the center.
5. Mans exploration of space deals with the application of the laws of gravitation and motion.
6. The energy of stars is produced by atomic fussion.
7. The universe is a vast space and undergoing constant change.

ASSIGNMENT OF POWERFUL CONCEPTS TO GRADE LEVELS

The powerful concepts were presented to a group of thirteen elementary teachers, with three days of explanation by the subject specialists. The next task was for the elementary teachers and the specialists to assign the concepts to the various grades.

The first consideration in assignment of powerful concepts to grade levels was to determine where they fit in the current curriculum. For example, in the third grade, pupils study contrasting communities in the United States. This was a natural place to assign concepts of geographical specialization and the federal system of dividing political power between states and the nation. The workshop members had the right to suggest changes in the curricular sequence, but generally this was judged to be unnecessary.

A second consideration was to judge the complexity of subject matter that could be mastered by students of various levels of intellectual maturity. This problem was particularly troublesome in kindergarten and the first three grades. In most cases the decision was made to place heavier intellectual responsibility on students than had previously been the case.

The final consideration in alloting concepts to grade levels was to maintain a logical sequence in subject matter. Some concepts and processes are building blocks for others that are more complex. Recent experimentation has shown the value of presenting concepts in a structure discernible to students. This curriculum leads students periodically to intellectual vantage grounds from which they can observe the broad structural organization of the subject disciplines. For example, ideas from anthropology are developed in several primary and intermediate grades, but in the sixth grade the students are presented a unit showing the structure and general viewpoint on anthropology.

It must be understood, that the concepts are not conceived to be a new curriculum. Rather, they are superimposed on the regular curriculum of the Manitowoc Public Schools. Two factors explain why this approach is used. First, as was noted earlier, many of the powerful concepts are illustrated in the curriculum but not made explicit. The sixth-grade social studies, for example, described the development of western civilization but did not use the opportunity to present powerful concepts on "culture." In a sense then, the definition of the curriculum in terms of powerful concepts is simply a completion of the original curriculum.

The second reason for superimposing the conceptual definition on the original curriculum must be explained in terms of the rationale on questioning. The idea is developed in earlier pages that textbooks usually leave little opportunity for critical thinking of students. The authors explain ideas lucidly and fully. This leaves little for the students to do other than remember. The dual definition of the curriculum gives the teacher an ideal opportunity to foster critical thinking. First he leads the students to an introductory understanding of the concept by induction or deduction - or perhaps the teacher simply presents the concept by exposition. After the student has been introduced to the concept, the teacher has a wonderful opportunity to use all levels of questions by asking students to figure out the relationship of the concept to the subject matter in the text.

The approach to curriculum described in these pages has been referred to as being "new." There is nothing original about organizing a curriculum around concepts. However, it is new to structure the curriculum in two layers, with powerful concepts superimposed on the textbook curriculum and with plans to have students engage in a variety of cognitive experiences in the process of relating the two layers of the curriculum.

The next several pages contain the results of the grade-level allotments of concepts in social studies and science. The topics listed are briefly identified by words or phrases that refer to the concepts described by the subject specialists in the previous pages. Readers may wish to refer back to the earlier statements to get more complete definitions.

TENTATIVE POWERFUL CONCEPTS FOR SOCIAL STUDIES

KINDERGARTEN

Physical similarities and differences among humans
Functions of family
Role differentiation in family
Rules, Authority

FIRST GRADE

(Introduce year with unit on food followed by community helps, shelter and clothing)
Buying and selling goods and services at the market
Production of goods and services
Ownership of goods - private and public
Money as a medium of exchange

SECOND GRADE

Psychological and physical similarities of humans
Basic institutions in all societies
Review economic ideas from first grade and apply to communication and transportation

Applied to unit on Indians and early Manitowoc

THIRD GRADE

Political and geographic conception of city, state, nation
Law making and enforcing on three levels
Division of labor (technical and geographic)
Specialization, interdependence, transportation
Technology in production
Investment, savings, labor, management

FOURTH GRADE

Physical and psychological similarities and differences among humans (race)
Relationship between man and environment
Production, land, labor, capital, entrepreneur
Subsistence and commercial production
Consumption, standard of living
Functions of state government
Ethnocentrism, classification

FIFTH GRADE

Economic decisions
Economic concepts (in a structure) viewpoint of economics
Capitalism, private ownership, free enterprise, profit, competition
Allocation of economic resources
Geographic concept of region

IV. Resistance to cultural change. Cultures tend to resist change.

A. All men in all societies tend to cling to traditional customs and beliefs as a means of keeping their societies orderly.

B. Cultural traits tend to persist beyond the time of their usefulness.

C. Ethnocentrism and cultural bias tend to resist acculturation.

D. The better a new culture trait fits into existing patterns, the more likely it is that it will be adopted.

E. Material culture tends to change more rapidly than nonmaterial culture.

V. Cultural lag occurs when one part of culture changes faster than dependent parts, causing maladjustments.

ECONOMIC AND GEOGRAPHIC CONCEPTS INVOLVING DYNAMIC RELATIONSHIPS AND MANY PROBLEMS

I. Some static absolute concepts

- A. Free goods
- B. Economic goods
- C. Services
- D. Economic Resources or factors of production
- E. Production
- F. Consumption
- G. Investments
- H. Income
- I. Savings
- J. Taxes
- K. Government expenditure
- L. Future prospects
- M. Friction (transportation, communication and banking facilities)
- N. Primary, sedondary and tertiary industries
- O. Division of labor
- P. Specialization (individual and regional)
- Q. Interdependence
- R. Propensity to exchange
- S. Money
  - 1. Kinds
  - 2. Functions
- T. Commercial production
- U. Subsistence production

II. Concepts of static relationships or associations

- A. Allocation of economic resources
  - 1. Principle of greatest comparative advantage or least comparative disadvantage.
  - 2. Differences between productive units in one place as related to their requirements.
  - 3. Differences between regions or nations as related to supply.
  - 4. Efficient and inefficient allocation of resources.
  - 5. Productivity or standard of living as related to allocation.

- B. Use of natural resources as related to conservation
  - 1. Preservation
  - 2. Restoration or renewal
  - 3. Improvement above natural levels (Beneficiation)
  - 4. Efficient production and use
  - 5. Recovery and re-use
  - 6. Substitution
  - 7. The two conflicting philosophies

- C. Principle of factor substitution

- D. Classifications of economics by level of economic and technical development.
  - 1. Identifying criteria for underdeveloped economics
    - a. A high percentage of labor force allocation to agriculture and other primary production.
    - b. A low per capita gross national product

    c. A low per capita propensity to exchange
    d. Little or no change through time
  2. Identifying criteria for and characteristics of developed economics
    a. Low labor force allocation to agriculture and other primary industries
    b. High per capita gross national product
    c. High levels of per capita consumption
    d. Availability of energy at low cost
    e. Diversified manufacturing
    f. Numerous tertiary occupations
    g. Specialization and interdependence
    h. A high per capita propensity to exchange
    i. Well developed communication, transportation and exchange facilities
    J. Research and experimentation
    k. Urbanization
    l. Rapid evolution
  3. Locations of developed and underdeveloped economies
  4. Standards of living
    a. Efficient allocation of resources in developed countries and thus high productivity and standards of living.
    b. Inefficient allocation of resources in underdeveloped countries and thus low productivity and standards of living.
  5. Sociopsychological factors responsible for dichotomy of development.
    a. Value systems
    b. Feeling about status
    C. Individual prestige
    d. Other noneconomic phenomena

E. Some theories of underdevelopment
  1. Equilibrium economics
  2. Development economics
  3. Geographic determinism
  4. Dualism (sociological)
    a. Invading force
    b. Ingrown type
    c. Achievement factor theory
    d. Status theory
    e. Backwash results of colonial enterprise
  5. Circular causation
  6. Isolated enterprise
  7. Necessity for more knowledge

III. Important economic factors, dynamic relationships, resultants, problems and policies associated with the rapidly evolving universe of developed nations.
  A. Factors
    1. Technical innovations
    2. Transportation and communication innovations
    3. Economic evolution
  B. Dynamic relationships
    1. Relative shift of economic activities from primary to secondary and tertiary industries.
    2. An increasingly higher degrees of fabrication within the secondary industries.

3. Increasing efficiency in transportation (lower costs)
4. Increasing efficiency in the use of raw materials and fuels in the basic secondary industries.
5. Increasing efficiency in transportation of raw materials relative to finished products.

C. Resultants (a reallocation of resources)
1. Individual and geographic specialization
2. Individual and geographic interdependence
3. Changes in employment
4. Higher productivity and living standards
5. More leisure
6. Concentration of wealth (monopoly and oligopoly)
7. Large monolithic regions of agricultural specialization
8. Urbanization
9. A significantly new geography

D. Problems
1. Leisure
2. Concentration of wealth
3. Agricultural stabilization relating to increased productivity and inelasticity of demand.
4. Economic stabilization related to high degree of interdependence.
    - a. Monetary
    - b. Fiscal
5. Education related to employment changes
6. Population mobility
7. Urbanization
8. Conservation policies relating to recreation and water and air pollution.

E. Policies
1. Tariffs as related to the area of relativity
2. Foreign aid to underdeveloped areas
    - a. Philanthropic?
    - b. Competition with communism?
    - c. Subsidy to American agriculture, industry and labor (related to stabilization policies)?
    - d. Long term economic benefits to U.S.?
3. Peace Corps
4. Government intervention related to regulation
5. Government intervention related to stabilization
    - a. Agriculture
    - b. Employment act of 1946
    - c. Monetary policy
        - Interest rates
        - Reserve requirements
        - Open market operations
    - d. Fiscal policy
        - Discretionary
            - Taxes
            - Government expenditure
        - Automatic or built in
            - Progressive income tax
            - Unemployment compensation
            - Social Security
            - Federal Deposit Insurance
            - Medicare

7. Government intervention related to education.
8. Government intervention related to opportunities for employment and housing.

F. Conflicts
    1. Internationalism vs. nationalism
    2. Adam Smith, harmonies and laissez-faire vs. macroeconomics and John Meynard Keynes.
    3. The growth of central government
    4. Local vs. central government
        a. Economic regulation and stabilization
        b. Conservation
    5. Economic freedom?

1. HUMAN EVOLUTION

Man has evolved biologically and culturally over long periods of time. Since he has developed his distinctly human biological characteristics, his survival and progress has been much more dependent upon his cultural evolution than his biological evolution.

I. Biological evolution

- **A. Man developed to his present biological form through the same processes of biological evolution by which plants and other animals have evolved.**
- **B. All human beings evolved from a common ancestry; all are members of a single biological species, homo sapien.**
- **C. Men developed his distinctly human biological characteristics (sensitive brain, upright posture, manipulative hands, vocal mechanism) thousands of years ago. His development since then has been overwhelmingly cultural.**

II. Cultural evolution

- **A. Cultural evolution is independent of biological evolution.**
- **B. Cultural evolution results from man's capacity to communicate symbolically.**
- **C. Cultural evolution occurs at different rates and in different directions where cultures are isolated.**
- **D. The advance of modern civilization over historic man and primitive peoples is cultural rather than biological since biological man has changed little, if at all, during recorded history and since even the simplest primitive can absorb modern civilization when exposed to it.**

III. Man's progress and survival now depends largely upon his cultural evolution rather than upon his biological evolution.

2. HUMAN SIMILARITIES AND DIFFERENCES

People are much more alike than different.

I. Physical similarities. Physically all humans are more alike than different.

II. Psychological similarities. All people have the same basic needs and wants.

III. Cultural similarities. The same basic institutions are common to all cultures because of man's similar physical traits and needs.

IV. Physical differences. Large groups of mankind have more or less distinctive physical traits.

- A. Race. Anthropologists recognize three main racial stocks (Caucasoid, Mongoloid, Negroid) but large numbers of people cannot be classified due to intermingling of people through history.
- B. There are often greater physical differences among people of the same rane than among persons of different races.

V. Cultural differences. Although all cultures have the same basic institutions, cultures show remarkable diversity in specific cultural traits and patterns due to separate development in isolated environments.

- A. Cultural differences are often mistaken as proof of biological or national superiority rather than as differences in opportunity to borrow culture.
- B. Cultural differences enrich human experience.

3. MAN AND ENVIRONMENT

Man's way of life is limited by his physical environment and greatly influenced by his social-cultural environment.

I. Effect of physical environment

- A. Man has great capacity to adapt to various physical environments.
- B. Some cultures tend to adapt to natural environment, others to master it.
- C. Natural environment is not a causative factor in human behavior, but is one factor which limits the possible variations in cultural patterns.

II. Effect of social-cultural environment

A. Social-cultural environment has much more effect on man's behavior than does physical environment.

B. Different cultures make different responses to the same physical environment.

C. Technological cultures adapt physical environment to cultural goals.

D. Culture has enabled man to survive in hostile physical environments like deserts, the Antarctic, under water, outer space.

4. MAN LIVES IN GROUPS

All men everywhere live in groups. Man could not long survive without membership in some group or other.

I. Group defined

A. A group is two or more interacting persons with common interests or goals and persisting organization. They are recognized as an entity by themselves and others.

B. Groups satisfy human physical, psychological, and social needs such as the need to belong or the dependency of children.

II. Types of groups

A. Primary groups are small, intimate groups characterized by face to face interaction and a wider sharing of goals. (Family, play group, friendship group, neighborhood.)

B. Secondary groups are larger, more impersonal groups chacterized by more formal interaction, more deliberate organization, and less wide sharing of goals.

C. In-groups are "we" groups with which we associate and identify.

D. Out-groups are "they" groups, groups of outsiders with whom we do not associate, identify, or belong.

III. Membership in groups

A. Every person belongs to several groups.

B. Kn each group one has a status or position and a role or part he is expected to play in the group.

C. A person's membership in different and overlapping groups gives him various and possibly conflicting roles.

IV. Ethnocentrism is common to all groups.

V. Society is the largest group who share a common set of ideas, habits, and attitudes, live in a defined territory and consider themselves a social unit.

5. CULTURE

People living together in groups develop a common, learned pattern of behavior or culture.

I. Culture is shared learned behavior. It includes non-material knowledge, values, beliefs, skills and customs and material objects.

  A. Culture is learned in social groups.

  B. Culture is broken down into individual traits like wearing neckties and whole patterns like maize agriculture.

  C. All humans, even the most primitive, have culture which gives them superiority over animals.

  D. Man, who lacks instincts, developed culture because of his need to regulate group life and cope with the natural environment.

II. Cultural heritage is the accumulation of all previous human experience and handiwork known to a society.

  A. Culture is a precipitate of human society.

  B. No modern culture has developed more than a small fraction of its present heritage.

III. Cultural transmission

  A. Culture is transmitted through generations by learning; it does not affect bioligical inheritance.

  B. Culture may be transmitted through formal, manifest means (education) or through informal, latent means (imitation).

IV. Cultural continuity. Culture transcends the life of any individual or group.

V. Cultural diversity. Though all cultures share common aspects, there is remarkable diversity among cultures in traits and patterns of behavior.

  A. Though limited somewhat by biological make-up and natural environment, the number of possible variants in culture is infinite.

  B. Cultural diversity is due to cultural isolation and differential cummulation of patterns.

✓

VI. Ethnocentrism. Each society tends to regard its own culture as right and superior to all others.

VII. Cultural bias. Man tends to interpret all phenomena from his own cultural viewpoint.

6. SOCIAL ORGANIZATION

Societies develop social processes, social structure, and social controls to give order and stability to relationships among people.

6a. SOCIAL PROCESSES

Societies develop and function through recurring sequences of interactions called social processes.

I. Interaction is reciprocal influence between or among persons and/or groups.

  A. Interaction might be direct, involving physical movement, or symbolic, involving communication.

  B. Interaction might be person-to-person, person-to-group, or group-to-group.

II. Interaction has three basic and universal forms.

  A. Opposition is struggle against others or another for a goal.

  B5 1. Competition is trying to reach the goal first or to get more of a reward without trying to stop the other(s).

    2. Conflict is trying to secure a goal or reward by thwarting others. It is more violent opposition.

  B. Cooperation is acting with others toward a common goal.

  C. Differentiation is developing different sets of rights and duties associated with various statuses based on age, sex, occupation, class, etc.

III. Derived social processes. More complex forms of interaction grow out of the basic forms.

  A. Association. People continuously organize and join groups.

  B. Dissociation. Groups lose members and dissolve.

  C. Stratification. Groups are ranked by society into a hierarchy of social classes.

  D. Accommodation is non-deliberate or antagonistic cooperation. It is arrangement by which different individuals play separate parts in reaching the same goal. It develops to end opposition or be cause of highly developed specialization.

E. Assimilation is the fusing or blending of two previously distinct groups as one absorbs members or the whole of the other.

F. Acculturation is the borrowing of traits or patterns from another group.

6b. SOCIAL STRUCTURE

Individuals and groups in a society are interrelated in a structure which gives the society organizations to achieve its goals.

I. Role and Status. Individuals are ascribed or achieve statuses and roles.

II. Social class. All but the most rudimentary societies rank people in categories of power and preference from the highest to the lowest.

III. Minority groups. Many societies contain easily identified racial or ethnic minorities which are given separate and inferior social categories.

IV. Social Mobility. Societies have varying degress of social mobility, the capacity of individuals to move vertically or horizontally within the social structure.

V. Social Institutions. All societies develop social institutions which are dynamic complexes or norms and laws integrated around a principal function of the society. All societies have the family, educational, religious, economic, and political institutions.

6c. SOCIAL CONTROL

Societies develop a system of formal and informal social controls to keep order.

I. Informal social control is based upon norms (uncodified rules and standards of behavior).

A. Norms include:

1. Folkways, customary patterns of behavior.
2. Mores, patterns and standards associated with moral codes.
3. Taboos, morally forbidden patterns of behavior.
4. Values, the quality of desirability or undesirability.

B. Sanctions related to informal social control include shunning, ostracism, gossip, jeering, praise, approval and acceptance.

C. Self-sanctioning or "conscience" is an effective mode of informal social control.

D. Informal social control is the strongest means of securing conformity to group standards.

II. Formal social control is based upon laws (codified rules and standards of behavior.)

A. Legal control is more pronounced in complex societies.

B. Formal legal controls are imposed in areas of social life too important for informal social controls alone.

C. Sanctions related to formal legal controls are formal punishment such as fines, imprisonment, exile, or death imposed by a socially or legally designated agency.

D. Groups which cannot reach a goal by other means may attempt to reach it through legal control.

7. MAN AS A CULTURAL PRODUCT

Man is in part a product of his culture. His behavior is in large part influenced by his social-cultural environment.

I. Man's behavior results from interaction among genetic and social and physical environmental factors.

A. An individual inherits physiological needs; the means of satisfying these needs is to a great extent socially determined by the groups in which he lives.

B. An individual inherits a potential to develop and learn; the extent to which that potential is developed is limited or promoted by his social and physical environment.

C. An individual inherits physical traits; the desirability of these traits is interpreted by his cultural units.

II. Socialization. Man develops his patterns of behavior through social-psychological interaction with the groups he lives in and contacts.

A. Socialization is the process by which the individual learns from the groups in which he lives the social-culture qualities that make him a member of society and thus a "human being". It is the way in which culture is transmitted and the individual is fitted into social organization.

B. Man's biological nature makes socialization both necessary and possible. His lack of instincts andchildhood dependence make cultural learning necessary. His capacity to communicate and to learn make socialization possible.

C. Socialization is both deliberate and manifest and spontaneous and unconscious.

D. Initial socialization is the first transmission of cultural patterns and social norms to the child largely by primary groups early in life. Continuing socialization is subsequent influence upon the individual by primary and secondary groups throughout his life.

E. The most effective agents of socialization are those that have early access and psychological access to the child, are relatively exclusive, have intimate face-to-face interaction, and provides emotional experiences.

F. The child is active in socialization. His own characteristics lead him to reject, change, or better adjust to some social-cultural content. The socializing agents respond and adjust to the child and to their role as socializers.

G. Different cultures, subcultures, social strata, and groups will transmit different values, norms, habits, beliefs, values, etc. to new members.

H. From society's point of view, socialization leads to conformity and control; from the individual point of view, socialization leads to self-awareness and individuality.

III. Personality development. Socialization is the chief factor by which individual personality is developed and sustained.

A. Personality is the composite pattern of inherited and learned traits as an individual has organized them to meet daily requirements.

B. An individual adopts universal, specialty, and alternative cultural traits from the groups in which he lives.

C. Society ascribes certain statuses and roles to the individual according to sex, class, region, race, etc. The individual achieves other statuses and roles.

IV. Socialization develops a sense of self.

A. The self is social; it arises only upon interaction with others.

B. The self develops when the individual "sees" his own acts and thoughts as he learns and infers others "see" them.

C. The ideal self is an individual conception of how he thinks society thinks he ought to act and think.

V. Socialization imparts aspirations or goals which influence individual behavior.

VI. Cultural patterns imparted by socialization influence an individual throughout his life.

VII. Need of the individual to adjust to significantly different cultural content or social organization may lead to problems in personality and social adjustment.

8. CULTURAL CHANGE

Cultures change continuously at an ever-accelerating rate through innovation and acculturation.

I. Acculturation is borrowing from other cultures.

   A. All societies have borrowed vastly more of their culture than they have invented.

   B. The rate of cultural change accelerates as new developments in transportation and communication lead to more cultural contacts and interactions.

   C. Diffusion of cultural traits may be purposeful as in missionary work or in cultural imperialism or non-purposeful (by chance).

II. Innovation or invention is combining cultural elements in a new pattern.

   A. The cultural base. All that a culture has accumulated from its cultural heritage, determines the volume and nature of innovation.

   B. The rate of cultural change accelerates as the cultural base expands.

   C. Key or basic inventions in an area of cultural change may trigger a spurt of related inventions.

   D. The same or similar innovations often occur about the same time in different cultures with similar cultural bases.

III. Cultures change at different rates.

   A. A dynamic culture is one in which change is a dominant pattern. It has effective communication, many cultural contacts, and an expanding cultural base.

   B. A static culture changes very slowly. It is isolated.

PRECEDING PAGE MISSING

1. Most political socialization is through emulation.
2. Political socialization is a continuous process with three stages: initial political socialization, continuing political socialization and feedback.
3. Most effective political socialization is done by agents which have early access and psychological access to the individual and which are relatively exclusive and have more person to person interaction.

B. Political recruitment. People train and select some members of the community to be public officials who control the power of government.

C. Interest articulation and aggregation. People act as individuals and groups to influence government power to benefit their respective interests.

1. Letters and petitions
2. Public opinion
3. Interest groups
4. Political parties
5. Campaigns and elections
6. Anomic activities (riots, rebellions)

D. Political communication. People exchange ideas about politics and government.

1. Problem of propaganda
2. Problem of control and censorship

6. THE POLITICAL PROCESS

Societies institutionalize procedures by which the people influence governmental power and the government in turn uses its power to control the people.

I. The political process is the pattern of human behavior in politics and government.

A. Input functions are ways people influence government through politics.

B. Output functions are ways government power controls people.

C. The process is continuous, cyclical, dynamic.

II. The political system consists of the institutions a society uses in the input and output functions of politics and government.

7. INTERNATIONAL POLITICS

Nation-states struggle for power in the absence of any order-keeping mechanism higher in authority than themselves. They seek techniques and means to order international relations and restrain the use of national power.

I. The nation-state system. Beginning in post-renaissance Europe, nations as cultural entities have sought to establish their own independent governments or states. Each state is a soveregin entity, has independent jurisdiction within its own territory, and is the legal equal of all other states,

II. International anarchy. Nation-states struggle for power to realize national goals in the absence of any government higher in authority than their own. Interactions among nations are ordered only by conventions and accommodations mutually accepted.

III. Nation-states as political entities:

A. Social-cultural ethnocentrism and the legal sovereignty of the state tend to make nation-states independent power units.

B. National power depends upon factors like geography, resources, economic strength, military preparedness, population, cultural cohesion, national character and morale, and quality of leadership and diplomacy.

C. National goals reflect a nation's culture and are formally stated by the political leaders of the state.

D. Foreign policy is the plan and course of action by which a nation guides its relations with other nation-states. Foreign policy includes definitions and priorities of long and short range security, welfare, and ideological goals and strategy for using political, psychological, economic, and military means to achieve the goals.

IV. Uses of national power include policies of the status quo, policies of cultural, economic, or military imperialism, and policies of prestige.

V. Attempts to order international relations. Nation-states have sought means to restrain national power and to order international relations.

A. Balance of power. States have sought to maintain their own security and to restrain the power of other states by establishing a balance of power among states. Techniques to balance power include dividing power blocs, reciprocal compensations, armaments and arms races, alliances, and collective security.

B. International law. Nations have sought to order some of their relationships through formulation of international law. International law includes treaties, customs, judicial precedents, and generally recognized principles of law. In the absence of an international sanctioning agency, international law is enforced only with the consent of states or by the power of a state or group of states.

C. International organization. Nations have ordered some of their relationships by establishing regional and "universal" international organizations. Since states do not delegate sovereignty to international organizations, the organizations are limited to functions which their members agree upon.

D. World public opinion and morality are an increasingly important restraint upon national power as rapid, world-wide communication develops.

E. A one-culture world is increasingly probable as transportation and communication advances accelerate inter-cultural interaction and interdependence.

F. Theories of world government have long been proposed to provide an order-keeping mechanism to restrain the use of national power.

VI. Important factors in mid-twentieth century international politics include nationalism, the bi-olarization of power, the revolution of rising expectations, the population explosion, the ideological struggle, and the potential of total war.

BASIC CONCEPTS FROM ANTHROPOLOGY AND SOCIOLOGY

1. **HUMAN EVOLUTION.** Man has evolved biologically and culturally over long periods of time. Since he has developed his distinctly human characteristics, his survival and progress has been much more dependent upon his cultural evolution than upon his biological evolution.

2. **HUMAN SIMILARITIES AND DIFFERENCES.** People are much more alike than different.

3. **MAN AND ENVIRONMENT.** Man's way of life is limited by his physical environment and greatly influenced by his social-cultural environment.

4. **MAN LIVES IN GROUPS.** All men everywhere live in groups. Man could not long survive without membership in some group or other.

5. **CULTURE.** People living together in groups develop a common, learned pattern of behavior or culture.

6. **SOCIAL ORGANIZATION.** Societies develop social processes, social structure, and social controls to give order and stability to group life.

    a. **SOCIAL PROCESSES.** Societies develop and function through recurring sequences of interaction called social processes.

    b. **SOCIAL STRUCTURE.** Individuals and groups in a society are interrelated in a structure which gives the society the organization to achieve its goals.

    c. **SOCIAL CONTROL.** Societies develop a system of formal and informal social controls to keep order.

7. **MAN AS A CULTURAL PRODUCT.** Man is in part a product of his culture. His behavior is in large part influenced by his social-cultural environment.

8. **CULTURAL CHANGE.** Culture changes continuously and at an ever-accelerating rate through innovation and acculturation.

2. COMMUNITY

People living together in groups develop a sense of belonging and loyalty to their common community.

I. Community is a group of people who have a sense of common identity, some degree of ethnocentrism, and common cultural traits. It usually has a defined area and a common language.

- A. Ethnocentrism: Members of a community share a sense of belonging and likeness, of difference from and superiority over non-members, of duty and loyalty to the community, and of pride in the community.
- B. Power of community: Social norms and structure and ethnocentrism give community power over members and make community a unit of power.
- C. Multiple community membership: Individuals are members of several communities which may sometimes have conflicting goals.
  1. Neighborhood
  2. City
  3. Region
  4. Nation
  5. International Community (i.e. the West)
  6. World
- D. Nation is the largest community with homogeneous culture.
- E. Nationalism is ethnocentrism at the national level. It is one of the most powerful forces in the world.
- F. Sense of community has a positive correlation to economic, cultural, and political unity and exchange.
- G. "Public interest" or the "general welfare". People in community have an understanding that there are interests of the whole community which may conflict with individual interests.

II. Citizenship is membership in community, usually as defined and regulated by government. It includes duties and privileges of membership.

- A. Duties of citizenship
- B. Privileges of citizenship
- C. Unique importance of citizenship in a democracy

3. GOVERNMENT OR THE STATE

All societies develop an order-keeping mechanism to provide for the protection and welfare of the community. These governments differ in scope and structure of power.

I. Government or the state is an institution with the power to rule, protect, and keep order. It usually rules one nation and a defined area.

- A. Government is an integral part of a society, one of several basic institutions.
- B. Government in some form is universal to all societies.
- C. Government is needed as an order-keeping mechanism but is not necessarily the most powerful institution in a society.

II. Characteristics of government make it unique among institutions.

- A. Sovereignty Government is supreme and independent within its realm of authority.
- B. Sanctions. The power of government is sanctioned or approved by the highest authority valued by the community (i.e. the people, a god, natural law, military power).
- C. Government as an institution has a virtual monopoly on coercion.
- D. Government has all-inclusive, compulsory jurisdiction.
- E. Government has arbitrary power.

III. Functions of government: Government performs two essential functions:

- A. Protection (internal protection, internal order, protection of civil liberties).
- B. Welfare - the provision of services essential to the general welfare of the community.

IV. Processes of government: Government performs its functions through three interrelated processes.

- A. Rule making
- B. Rule application
- C. Rule judging

V. Variations in government: Different societies through time and space have different governmental institutions.

A. Governments may be classified in terms of power continua.

1. Scope of power

Government has: ← no power — some power — all power →
anarchy — Laissez-faire welfare state — totalitarian government
limited government

2. Who rules

Government power is controlled by ← one — some — majority — all →
Monarchy-dictatorship — oligarchy — democracy

3. Geographic power structure

Arrangement of power in an area ←→
Disorganized union — confederation — federal system — centralized system

4. Party system

← one — two — multiple →

5. Functional structure: Presidential system with separation of powers, parliamentary system with control of all functions by the legislature.

B. Comparing and evaluating different governments requires relating the political institutions of each society to its values, norms, and other institutions.

VI. Change in government: The role and form of government continuously evolve as the society, of which government is a part, changes.

4. LAW

All societies develop laws or formal social controls to order important aspects of their culture.

I. Law is rules and standards of a community which are enforced by government.

  A. Law reflects the values, norms, beliefs, and institutions of a culture.

  B. Effective law has community sanction.

  C. Law is both written and unwritten.

  D. Public law protects the common good, private law protects special interest groups or persons.

II. Constitutions are the basic law of a land. They outline a general framework of government and limit the power of government.

  A. Written and unwritten constitutions

  B. Constitutionalism

  C. Constitutional law

  D. Constitutional flexibility

III. Law changes in meaning and scope to meet new needs and situations in an ever-evolving culture.

5. POLITICS

Individuals and groups in a society struggle for power to satisfy their varied and sometimes conflicting interests.

I. People seek power to reach goals and satisfy needs.

  A. Politics, in general, is the struggle for power. More specifically, it is competition or conflict among men to use the power of the state to benefit their interests.

  B. People may seek either to have government power to be used in their interest or to have government sanction and protect their individual power or freedom.

II. People influence government power through a variety of processes.

  A. Political socialization. The community teachers members basic patterns of political behavior (ideology, myths, values, beliefs, norms, habits, knowledge, etc.)

SECTION IV

EXPANSION OF THE RATIONALE ON QUESTIONING INTO A NEW APPROACH TO CURRICULUM DEVELOPMENT

The unit of concern in the taxonomy of questions is the classroom question - taken one at a time. It soon becomes evident that a teacher needs a tremendous volume of questions. The category of questions above memory that teachers use most frequently is interpretation, and this form of question usually can be asked and answered in a short time. At great expense of time and energy, a teacher might compose fifty or sixty interpretation questions which can be answered in a single class period. The idea of teaching on a variety of levels appeals to teachers, but it seems almost hopeless to get enough good questions.

Also, in dealing with single questions as the unit of concern, there are no guidelines for defining a whole course of study. Some teachers, successful in developing lessons featuring synthesis or evaluation, are left with a "So what?" feeling because they can not see where the lessons are leading.

A third problem is that some teachers have difficulty identifying the subject matter most amenable to questions. At several points in the original rationale, the teachers are advised that it is easier to compose questions with important generalizations, definitions, values, and skills. However, identifying these big ideas proves a problem to many.

These three problems suggested the need to consider the relationship between questioning strategy and the definition of entire courses within the curriculum. All three are now attacked in a new approach to curriculum study developed under this project. The approach is best defined by a historical description of its growth.

In curriculum development the first three considerations inevitable are the child, the society, and the subject disciplines. This rationale adds a fourth element: the need to define curriculum in a manner making it as easy as possible for teachers to ask questions in all categories.

After toying with the idea of defining subject matter under the heading of generalizations, definition, values, and skills, this was discarded in favor of organizing around "concepts." The main efforts to identify the kind of concepts sought was in the fields of social studies and science, with emphasis on grades K-6. Because elementary teachers cannot be experts in all subject disciplines, it was necessary to call for assistance from four subject specialists in science and social studies who were found in the departments of the high school and in a local college. All, except the college specialist, had a background in the taxonomy of questions.

A critical point was to describe to the specialists the kinds of concepts that would be useful in questioning. A survey of the literature on concepts showed a divergence of ideas on their nature. Following are quotations that were helpful in evolving a definition of "concept" to be used in this project:

> The concept was seen as . . . not the event itself, nor even the stimulus experience itself . . . but as a classification system (F. McDonald, Educational Psychology, 1959, p 134)
>
> A concept is a suggested meaning which has been detached from the many specific situations giving rise to it . . . (W. Burton et al., Education for Effective Thinking, 1960, p 154.)
>
> The concept is not cut off from concrete reality - it is simply the mind's way of "thinking the many into one" or, as philosophers say "finding unity in variety." . . . All concept forming is a syntheses; all definition is an analysis. (J. Keith, Elementary Education, 1907, p 128.)

> Concepts are not single stalks of wheat in separate rows, but a wheat field waving as one in the breeze. (D. Russell, Childrens Thinking, 1956, p 124.)

> By a careful analysis of the structure of knowledge it is possible to discover certain key concepts distinguidhed by their power to epitomize important common feature of a large number of more particular ideas. Such concepts are basic central ideas, an understanding of which opens the door to an effective grasp of an entire field of knowledge. (P. Phenix, Key Concepts and the Crisis in Learning, Teachers College Record, Dec. 1956, p 137.)

From these ideas and others, the following list of characteristics of concepts was composed:

1. A concept is the meaning an individual associates with words, other symbols, or experiences.
2. Concepts are convenient units of understanding for learning and use.
3. Concepts vary in complexity, abstraction, importance, accuracy, and usefulness.
4. Broad concepts are made up of smaller concepts that can be identified and treated separately.
5. Concepts are always at least partly subjective, because they are based on personal integration and differentiation.
6. Concepts can be communicated by words and other symbols, but communication is often not perfect because semantic difficulties.
7. Concepts can have both cognitive and affective elements.

Some writers have overemphasized the thought that concepts are by nature important ideas. As far as the curriculum is concerned, this is not true. The concept of "dog" brings to mind a "barking", "tail-wagging", "man's best friend", which we must sometimes "beware of." It encompasses everything from a Dachshund to a Great Dane. The concept of "dog" has a limited use in life but is not of any great significance in the curriculum and does not lend itself to significant thinking.

The last quotation above made a vital point in referring to ". . . key concepts distinguished by their power to epitomize important features of a large number of particular ideas." The central thought for curriculum development is not "concept" (the rudimentary definition in terms of characteristics of concepts listed above can serve adequately); the central thought is "powerful".

What makes a concept powerful?

1. The more explaining, classifying, or solving power that a concept has, the more powerful it is.
2. The more situations if life to which a concept is related, the more powerful it is.
3. The more closely a concept is associated with the basic needs of man, the more powerful it is.
4. The more closely a concept is associated with problems faced by people in our culture, the more powerful it is.
5. The more closely associated a concept is with one of the great controversial issues of our culture, the more powerful it is.

The subject specialists in this project were told that powerful concepts, as defined above, apply to many units of study. For example, if certain powerful economic concepts were assigned to the fifth-grade curriculum, then these concepts should apply to many, or perhaps all, social studies units in that grade. The powerful concepts should cross subject lines easily. Powerful social studies concepts might be seen operating in the literature studied in language arts class. The subject specialists were not expected to determine the concepts appropriate for each grade or even for elementary school. They were only charged with reviewing their disciplines to discover the powerful concepts.

The results of the work of the specialists are presented on the following pages. The concepts from political science, sociology, and anthropology are presented first. They are followed by those in economics and geography. The science concepts are presented last.

A study of the powerful concepts identified by the subject specialists reveals three important points. First, the definition of "powerful concept" appears to be functional, because the specialists were able to gather the right kind of concepts in their disciplines. Second, many of the powerful ideas in social studies were illustrated in the Manitowoc curriculum but not explicitly taught. For example, the fifth-grade social studies takes the form of a regional study of the Western Hemisphere. Each region is described geographically and economically, but few of the powerful concepts from these disciplines are explicitly stated. The textbook descriptions illustrate the concepts but miss the opportunity to make them explicit and to have children use them in new situations. Third, many of the powerful concepts have not been studied by elementary teachers in their professional training. Several reasons account for this. Some of the knowledge is comparatively new and was not presented in college courses until recently. In addition, the professional training for elementary teachers emphasizes history and geography. It is unfortunate that other social studies subjects are neglected, because they contain some of the most exciting and powerful concepts. A curricular development program aimed at using a wide variety of powerful concepts must provide teachers with some subject-matter instruction in various disciplines.

The subject specialists were permitted to choose their own format for presenting concepts and consequently there in some variation. One specialist wrote his own statement on the nature on concepts and the means of communicating them. This appears on the next page.

COMMUNICATING CONCEPTS

A concept is the meaning or meanings associated with a symbol, thing, or experience. Some concepts are relatively universal, others relatively subjective. Some are quite simple, others highly complex. Some are relatively static, others change as more experience and knowledge add to and color a pattern of meanings.

Basic social studies concepts tend to be generally universal, quite complex and relatively dynamic. This makes communication of social studies concepts difficult.

The concept of culture, for example, can be conveniently communicated by using the written symbol culture, but there is no guarantee that the writer and the reader of the word associate the same complex of meanings with the symbol. Or, the concept of culture could be expressed as a definition, but there is no guarantee that the definition conveys the significances of culture. Or, in yet another attempt, the concept of a culture could be stated as a generalization, but there is no guarantee of mutual understanding of the terms and more simple concepts in the complex generalization.

The problem then is how to communicate basic social studies concepts in a way that is convenient, meaningful, clear, and complete. We must communicate concepts in defining curriculum, but such communication may be inadequate or even misleading if concepts are stated simply as symbols, definitions, or generalizations. Yet we cannot use a whole course of study as a means of communication.

With this problem in mind, the following approach will be used here to more efficiently, but effectively, communicate concepts. The concept will first be stated as a convenient term or phrase. A generalization containing the more important meanings of the concept will be stated next. Related sub-concepts, generalizations, and definitions will follow in an outline to make the concept more complete and clear.

SOCIAL SCIENCE

Knowing and understanding man and his behavior requires careful use of the methods and attitudes of science.

I. **Social science is the systematic, objective accummulation and organization of knowledge about man and human relationships.**

II. **Social science fields**
   - A. **Archeology**
   - B. **Anthropology**
   - C. **Sociology**
   - D. **Social psychology**
   - E. **Economics**
   - F. **Political science**
   - G. **Geography**
   - H. **History**

III. **Methods in social science**
   - A. **Observation**
   - B. **Classification**
   - C. **Induction**
   - D. **Deduction**
   - E. **Scientific method**
   - F. **Control groups**
   - G. **Statistics**

IV. **Attitudes in social science**
   - A. **Objectivity**
   - B. **Reservation of judgment**

V. **Handicaps in social science**
   - A. **Subjective factors**
   - B. **Cultural bias and resistance**
   - C. **Large number of variable factors**
   - D. **Difficult to experiment**
   - E. **Logical errors such as haty generalizations**

BASIC CONCEPTS FROM POLITICAL SCIENCE

1. POWER. Power is a universal element in human interaction.
2. COMMUNITY. People living together in groups develop a sense of belonging and loyalty to their common community.
3. THE STATE. All societies develop on order-keeping mechanism to provide for the protection and welfare of the community. These governments vary in scope and structure of power.
4. LAW. All societies develop laws or formal controls to order important aspects of their culture.
5. POLITICS. Individuals and groups in a society struggle for power to satisfy their varied and sometimes conflicting interests.
6. POLITICAL PROCESS. Societies institutionalize procedures by which the people influence governmental power and the government in turn uses its power to control the people.
7. INTERNATIONAL POLITICS. Nation-states struggle for power in the absence of any order-keeping mechanism higher in authority than themselves. They seek techniques and means to order international relations and restrain the use of national power.

1. POWER

Power is a universal element in human interaction

I. Power is influence or control over people's actions or thoughts. It is the capacity to take action or make decisions affecting self and/or community.

A. Who has power

1. All persons have power over self and community. Some have more than others.
2. All groups and institutions, whether economic, religious, social, or political, have power over members and community. Some have more than others.

B. Sources of power

People and institutions derive power from social status and norms, economic means, psychological means, and physical means.

C. Forms of power

1. Coercion
2. Authority
3. Manipulation

D. Structure of power

In communities individuals, groups and institutions are arranged in a hierarchy of power.

II. Freedom is individual power - the power of individual persons and groups to act or decide in the relative absence of restraint by community or government and/or with license and protection from community or government.

A. Freedom is relative

Freedom for some may mean denial of power to others or harm to the "public interest"

B. Denial of power

Those denied power tend to seek use of governmental power in their behalf.

C. Civil rights

Civil rights are freedoms and privileges defined and protected under a system of government.

EXERCISE I

In the following strategies of teaching procedures the students have not been given previous instruction in the generalization. Neither has there been any particular emphasis on the scientific method in previous instruction. The main goal is to teach the generalization rather than give practice in the scientific method.

Questions for Students

Strategy I: Devise a means of proving or disproving the following generalization: "A constant force produces a constant rate of acceleration." Write a description of your procedure. You may assume that you have the equipment that is in our laboratory and any other readily available equipment or materials.

Strategy II: Devise a means or proving or disproving the following generalization: "A constant force produces a constant rate of acceleration." Gather the necessary equipment and prepare to demonstrate your proof to the class.

Strategy III: (Provide equipment used in PSSC experiment but not the laboratory manual describing the procedures.) Using the equipment made available to you, devise a means of proving or disproving the following generalization: "A constant force produces a constant rate of acceleration."

Strategy IV: Duplicate the teaching procedure in any one of the three previous strategies except change the generalization thus: "A constant force produces an increasing rate of acceleration."

Questions for teachers on teaching strategy:

1. Which category of thinking is emphasized in all four strategies?

2. Would these approaches generally take more or less class time for execution than the exercise in the PSSC booklet? Why?

3. Which of the four strategies places most intellectual responsibility on the students? Why?

4. What are advantages and disadvantages of using strategy IV as opposed to any of the others?

5. Would these procedures be more appropriate for pupils of one level of scholastic aptitude rather than another? If so, for which students is it most and least suitable?

6. Would these procedures be more appropriate for other generalizations? For example, in junior high school would the strategy procedures work well on one of the following generalizations:

   Volume does not necessarily determine mass of an object.
   Volume does not necessarily determine the ease of movement of an object.
   "If the same force is applied to two objects of different masses, the object of lesser mass will have the greater acceleration."

NSTA Motion

7. What practical problems in execution are there for strategy II and III that would not occur in strategy I? What advantages have strategy II and III over I?

8. Would you prefer to teach a class that is difficult to control with one of the four strategies suggested in this exercise or with the PSSC recommendations? Why?

9. Supposing the text had a rather thorough explanation of the generalization and that the students read the text before their laboratory exercises. What effect would this have on the form of thinking the students might use to perform one of the strategies in this exercise?

EXERCISE II

Questions for Students

Strategy I: The class has completed strategy I of Exercise I. The teacher duplicates a half-dozen contrasting procedures in the previous assignment by the students and passes them to the class. The new assignment is to determine which is the best and which the worst job in proving or disproving the generalization. The students are expected to justify their decisions.

Strategy II: After performing PSSC exercise III-2, the teacher places the following statements of the generalization on the board and asks which is best.

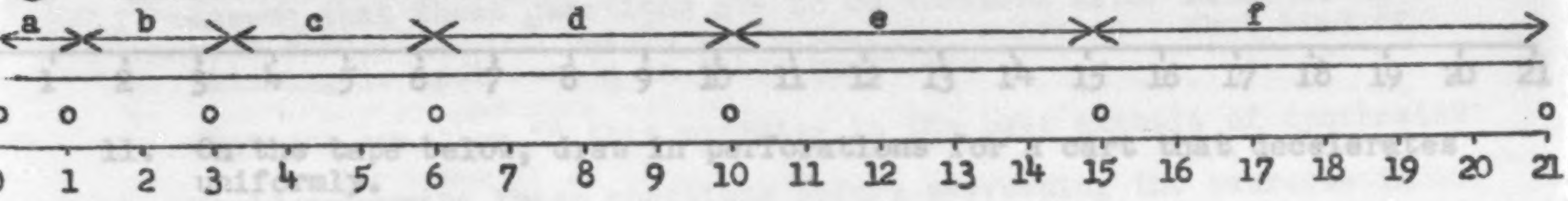
1. A constant force produces a constant acceleration.
2. The change in velocity of an object is proportional to the time interval during which a constant force acts on it.
3. If a constant, unchanging force is exerted on an object of a given mass, the rate of acceleration of speed will uniformly increase the same amount.
4. $A = \frac{F}{M}$

Questions for Teachers

1. What category of thinking is emphasized in these two strategies?
2. Do one or more of the three following criticisms legitimately apply to the two strategies in this exercise:
   A. The problems are not of a type encountered by scientists.
   B. The problems do not focus on the objectives for teaching the generalizations.
   C. The problems are too hard for twelfth-graders.
3. What problems do you see in correcting the students' answers to these problems?
4. Is it reasonable for a science teacher to assume that virtually all questions he asks in recitation, assignments, and examinations should call for objective answers? Why?

EXERCISE III

Questions for Students (after having read but before performing PSSC III-2)



Assume that the above tape from an electric timer was produced in PSSC Experiment III-2 when using two bricks. The scale on each tape is in centimeters. The circles (o) represent perforations on tapes.

1. Using the small letters, what is the equation that presents the distance traveled in the first three ticks?

   A. Distance in 3 ticks = c-a

   B. Distance in 3 ticks = a+b+c

   C. Distance in 3 ticks = a+b-c

   D. none of the above

2. Is the cart represented on the tape accelerating, decelerating or remaining even in velocity?

3. Is the time elapsing between perforations remaining constant, increasing, or decreasing?

4. Is the distance traveled between perforations remaining constant, increasing, or decreasing?

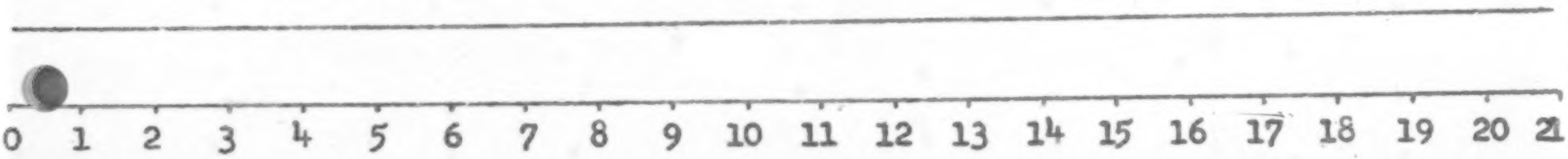
5. Is the velocity of the cart remaining constant, increasing or decreasing on tape A?

6. In centimeters per tick, what is the average velocity per tick during the third tick?

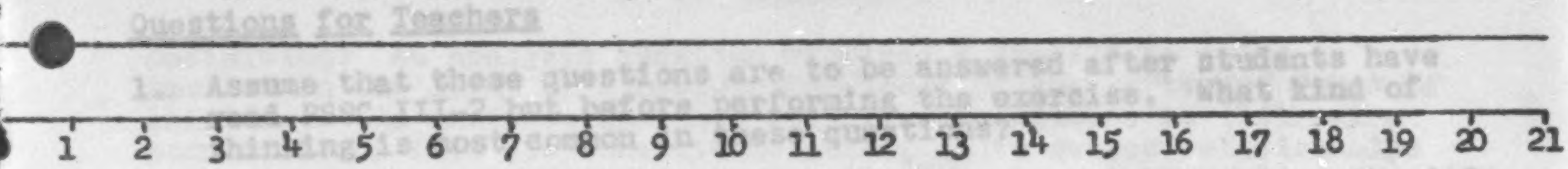
7. What is the velocity at the end of the third tick?

8. Compute the average velocity of each of the first six ticks. What conclusion can you draw regarding the average velocity of the cart on this tape?

9. On the blank tape drawn below, draw in perforations for a cart that accelerates at a uniform rate.



10. On the tape below, draw in perforations for a cart that maintains constant velocity.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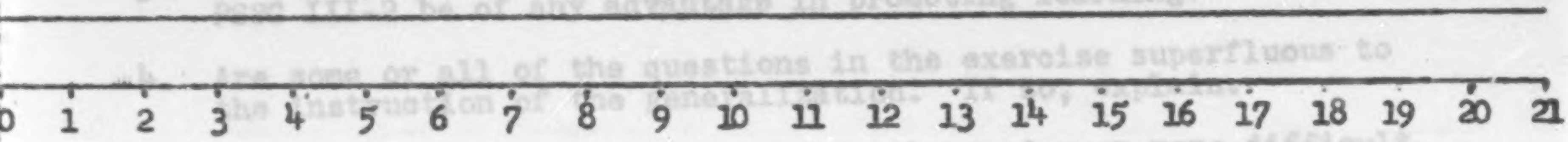
11. On the tape below, draw in perforations for a cart that decelerates uniformly.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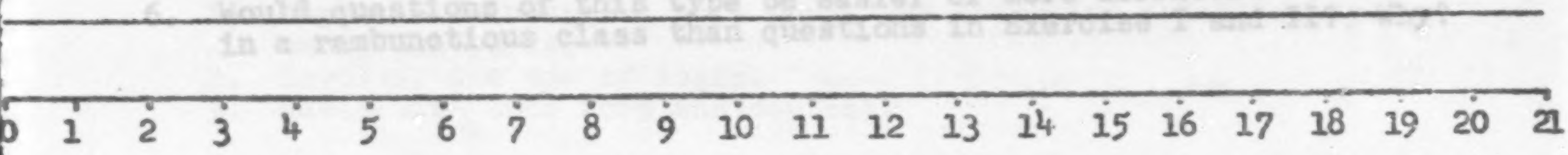
12. On the tape below, draw in perforations that would show that a constant force produces a constant rate of acceleration.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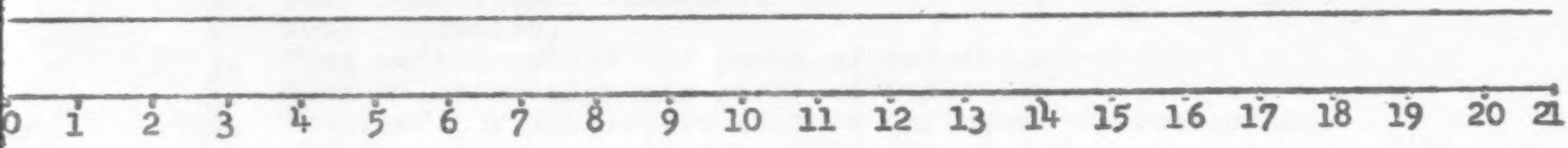
13. On the tape below, draw in perforations showing that a constant force produces a uniform speed with no acceleration.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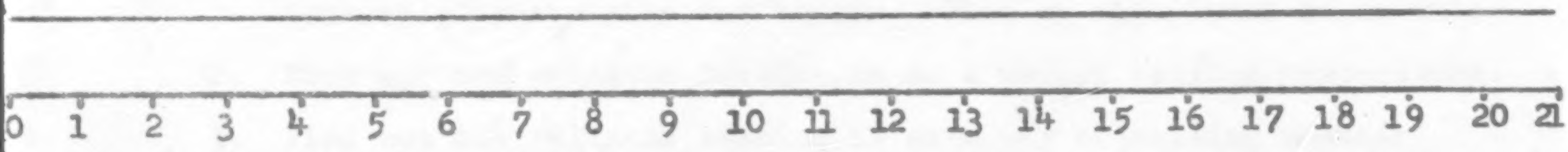
14. On the tape below, draw in perforations showing that a constant force produces an increasing rate of acceleration.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15. Devise a formula that can be used to compute the distance traveled at a uniform acceleration for a given period of time.

Questions for Teachers

1. Assume that these questions are to be answered after students have read PSSC III-2 but before performing the exercise. What kind of thinking is most common in these questions?

2. What one question in this exercise is the best example of synthesis?

3. Would answering these questions before performing the exercise in PSSC III-2 be of any advantage in promoting learning?

4. Are some or all of the questions in the exercise superfluous to the instruction of the generalization. If so, explain.

5. Would the answers to these questions be easier or more difficult for the teacher to correct than those for questions in Exercises I and II. Offer reasons to support your conclusions.

6. Would questions of this type be easier or more difficult to use in a rambunctious class than questions in Exercise I and II? Why?

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V. ANALYSIS

Definition: An analysis question requires a student to solve a problem in the light of conscious knowledge of the parts and forms of thinking. (An analysis question requires the student to (1)break a communication into its constituent parts, (2)to detect relationships among the parts, and (3)to determine whether the relationships are valid according to the rules of logic.) Questions concerning the scientific method and the controlled experiment will generally fall into this class of question.

Identifying characteristics:

1. Emphasis on breaking into parts and detecting relationships among the parts.
2. Involves the use of logic.
3. Deals with both form and content.

Types of analysis questions:

1. Find constituent elements.
2. Find fallacies.
3. Find relationships and parts of deduction.
4. Find relationships and parts of induction.
5. Consider how subjective factors influence communication.

Examples:

1. Find out how many people in your class can taste the difference between oleomargarine and butter. Plan an experiment to do this.

2. Find out how reliable feeling is as a way of telling temperature.

3. Find out how reliable tasting is as a way of telling whether something is sweet or sour.

4. Find out how reliable people are in taking pulse rates.

5. The ear lobes of some people are attached directly to the head. They are called attached ear lobes. The ear lobes of other people hang free. These are called free ear lobes. The ear lobe trait is believed to be inherited. Which do you think are dominant--attached or free ear lobes? Plan a way to find out.

VI. SYNTHESIS

Definition: a synthesis question requires a student to combine parts of his past experience to solve a problem that requires original, creative thinking.

Identifying characteristics:

1. These questions allow students great freedom in seeking solutions. Synthesis calls for divergent thinking, starting from a problem that offers a variety of possibilities, and radiating out to many satisfactory answers.
2. Emphasis is on the creation of an original product
   a. production of a unique communication.
   b. production of a plan, or proposed set of operations.
   c. derivation of a set of abstract relations.
      1. Induction--a mass of related information is presented and he is asked to find a pattern.
      2. Deduction--he is given one or more generalizations, and asked to produce a new idea.
3. It is difficult to evaluate answers fairly for synthesis questions.

Types of synthesis questions:

1. Science project and experimental design.
2. Term paper.

Examples:

1. Set up a plan which you could use to separate a mixture of sand and salt.

2. Make a list of ways you think a fire might get started in your home. Tell how it could be prevented.

VII. EVALUATION

Definition: An evaluation question is one which requires the student to establish the standards appropriate to judging the merits of an idea or object and to determine how closely the idea or object meets these standards.

Identifying characteristics:

1. Emphasis is on judgment.
2. The student must both set and apply standards.
3. In evaluation there can be no absolute assurance that the product represents truth.

Types of evaluation questions:

1. Issues
2. Evaluate material with reference to selected or remembered criteria.
3. Judging science projects.

Examples:

1. Prepare a list of reasons for favoring the introduction of the metric system into the United States for general use. State the objections to its introduction.
2. Residents of a badly eroded hilly area where most of the trees had been cut for lumber 20 years before, found that they had to drill deeper wells to get water for their livestock and for household use. Drought periods caused a gradual lowering of the "sweet water table," the level of year round moisture in the soil, and made it harder to grow crops. An organization of sports lovers in a nearby city formed a corporation to buy land and dam up a small spring-fed creek of that neighborhood to provide fishing spots. The land owners nearby disapproved of the artificial lake project on the basis that it would spoil much good farm land and bring undesirable crowds of people into the community. Are the land owners really considering their best interests in fighting against the artificial lake project? Why?
3. What is your attitude toward the following statement?
   a. N ight air is bad for breathing.
   b. A modern house does not need a ventilating system.
   c. Air conditioning in summer is unhealthful.

Categorize the following questions:

1. State Charles' Law.

2. In the chemical reaction of iron and sulfur, is
   a. the total number of atoms changed?
   b. the total weight of materials changed?
   c. the total weight of the compound formed equal to the weight of the materials used?
   d. the property of the elements changed when the compound is formed?

3. Can you explain why it is usually more economical to buy gasoline in the morning hours than in the afternoon.

4. There is a chemical called phenylthio-carbamide, which some people can taste and others cannot. Whether you are a taster or not is determined by heredity. You either can taste the chemical or you cannot taste it. Plan a way to find out which is dominant--the ability or inability to taste phenylthio-carbamide.

5. Plan and do an experiment to find out how much water there is in an apple or potato.

6. Should water power sites be controlled publicly or privately? Discuss.

7. What advantage do you gain from fanning yourself during hot, and expecially muggy, weather?

8. Give the name of the person given credit for developing the formula $E=mc^2$.

9. Plan and execute an experiment to determine the accuracy of the weather prediction of the U.S. Weather Bureau of your community.

10. Do you think that fuel is being wasted in your community?

11. How many grams of mercury II oxide will we have to heat to give us 10 liters of oxygen?

12. Are there as many molecules of H_2O in a quart of water at a temperature of 80° as in a quart of water at 60° F? What does this tell you about the densities of the two quarts of water?

13. Iron weights 490.5 pounds / cubic foot. There are 2 cubic feet in a certain bar of iron. Figure out how much this bar would seem to weigh in water.

14. Does a rusting tin can gain in weight. Prove it.

15. How many ways can you think of to measure an irregular area?

16. Examine our city water supply system. Does it meet the present needs of our growing city?

17. The rate of flow of liquids through a siphon is affected by the following factors:
a. difference in the height on the two arms.
b. diameter of the tube.
c. nature of the liquid
Plan and execute a controlled experiment to measure the effect of each of these factors on the rate of flow through a siphon.

18. Make a list of some chemical changes that are going on around you. Explain how you know that each is a chemical change.

19. According to the molecular theory, heat is due to molecular motion. Explain by the use of this theory why the earth's surface is heated by the sun's rays and why water does not heat as rapidly as land.

20. How many moles are there in 64 grams of oxygen?

21. How many molecules are there in 64 grams of oxygen?

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construction cont.

3. Fibonacci numbers. Let f_n denote the "nth" Fibonacci no. Thus the first two Fibonacci numbers are represented by f_1, f_2. The sequence of Fibonacci numbers is defined recursively as follows:

$$f_1 = 1$$
$$f_2 = 1$$
$$f_{n+2} = f_n + f_{n+1}$$

thus $f_3 = f_1 + f_2$ or $f_3 = 1 + 1$ ∴ $f_3 = 2$.

Continuing we build the sequence below.

1 , 1 , 2 , 3 , 5 , 8 , 13, 21, ...

I would categorize the following question as a construction question if it was somewhere between the 15th and 30th problem he had been given to work on. By this time the student would realize that there were many ideas that he could try, yet he could not "work backwards" to find the required step. Of all the ideas that he may try, none of them will be recognized as a correct step (even tho it may be) until he performs several manipulations. By this time he does have many ideas and procedures at his disposal (which might seem to put this in the application category) but he won't spot a useable idea until he has done some work with it.

Question: Prove that

$$f_{k+1}^2 = f_k f_{k+2} + (-1)^k$$

This actually requires an induction proof (using the Theorem of Mathematical Induction) and the proof will be quite routine once the key step in the induction part of the proof is found.

Note! There may be a good reason to place this in the synthesis category.

The student should be told that the key step in the proof is something that he has not done before but that he has performed similar steps in other problems.

NOTES FROM TAXONOMY OF QUESTIONS

I. MEMORY

Definition: A memory question is one which requires the student to recall or recognize information (facts, terminology, generalizations, theories, values, procedures, skills) accumulated from past experiences.

Identifying characteristics:

1. Only recall or recognition is required.

2. Little and possibly no understanding is required.

3. Material or behavior required for the answer is very similar to that in the learning experience.

Examples:

1. How many legs does a cat have?

2. Name the smallest type of goose found in the U.S.

3. State the first law of thermodynamics, in word form and in formula form.

II. TRANSLATION

Definition: A translation question requires a student to change information into a different symbolic form or language. A translation question describes an idea and instructs the student to express the idea in a different form of communication with substantially the same meaning.

Identifying characteristics:

1. The emphasis is on change in form.
2. The meaning remains substantially unchanged.

Types of translation questions:

1. Change from one verbal form to another.
2. Change from words to pictures or vice versa. (Graphs or charts to words or vice versa).
3. Matching paraphrased sentences or paragraphs.
4. Sociodrama.

Examples:

1. In your own words, what does Archimedes' Principle mean?
2. Graph the data in the following table:
3. Read the directions given for the following experiment, and then perform the experiment.

III. INTERPRETATION

Definition: An interpretation question requires the student to perceive relationships among given parts of a communication (facts, generalizations, definitions, values, or skills).

Interpretation questions may include the following types of relationships:

1. Comparative relationship--the student determines whether ideas are identical, similar, different, unrelated, or contradictory.

2. Relationship of implication--an implication is an idea that follows inevitably from specified evidence. If the evidence is true, then the implication must be true. The thought process in finding an implication is deduction.

3. Relationship of an inductive generalization to supporting evidence. A student draws an inductive conclusion when he observes that many members of a class have a common characteristic and concludes that all members of the class must have the same characteristic.

4. Relationship of a value, skill, or definition to an example of its use. The student is given a value, skill, or definition and asked to identify or compose an example of its use.

5. Quantitative relationships. The student is asked to use statistical information to draw conclusions.

6. Cause and effect relationships.

Identifying characteristics:
1. There is usually only one correct answer.
2. The question is explicit about that which is to be answered.
3. The answer is made on a common sense level.

Types of interpretation questions:
1. Like or different.
2. Degree of similarity.
3. Compare specific points.
4. Analogies
5. Irrelevant item.
6. Scrambled outline.

Examples:

1. Why does rearrangement of farms for soil conservation usually mean laying out new fields and fences?

2. Why is our weather warmer in summer than in winter?

3. Why is the inside of a pile of leaves or grass warm?

4. Under what condition is it possible to have a relative humidity of 100% on a day when the temperature is 90° Fahrenheit and also on a day when the temperature is below freezing?

IV. APPLICATION

Definition: An application question directs a student to solve a lifelike problem that requires the identification of the issue and the selection and use of the appropriate facts, generalizations, values, and skills.

Identifying characteristics:

1. These questions deal with useable knowledge, and emphasis is on the use of information or skill.
2. Questions deal with the whole of ideas and skills rather than solely with the parts.
3. Application questions include a minimum of directions or instructions, because the questions are based on previous learning, and the student is expected to know what to do. The student must himself select what information is appropriate for use.

Types of application questions:

1. Subject centered.
2. Application of skills.

Examples:

1. Why does a fish die in air, and a human being drown in water?

2. Which will dissolve faster in a cup of tea, two lumps of sugar or the same weight of granulated sugar? Why? What could you do to speed up the dissolving?

3. Why do you suppose the inert gases were so late in being discovered?

4. Explore your community to find places where soil is being removed by erosion.

5. You are given a hybrid seed to plant and obtain a plant with very desirable characteristics, how can you proceed to get many more plants like this one?

6. Why does it require less air to inflate a balloon in Denver than in Boston?

7. Why in high altitudes does your rate of breathing increase?

Synthesis

1. Geometry class , last month of the school year.

Earlier in the year we proved the Pythagorean Theorem,

if a,b,c are lengths of the sides of a right triangle
with c the length of the hypotenuse
then, $a^2 + b^2 = c^2$.

Question: You are to devise your own mathematical system.

Your goal is to devise a system which enables you to prove the Pythagorean Theorem. You are to construct your system from that definitions and postulates which we used in this course.

Your system should include only those definitions and postulates that are necessary for the proof of the Pythagorean Theorem. Every statement in your system should be a definition, a postulate, or a statement which results from the use of postulates or definitions.

This mean that you must find the smallest set of definitions and assumptions (postulates) that is needed to prove the Theorem.

2. Find the smallest set of definitions and postulates necessary to prove that the sum of the measures of the angles of a triangle is 180°.

3. Elementary

This is a question which may be asked of a student who knows his multiplication tables for "ones", "twos", "threes", "fours" and the "fives" upto 5x6 = 30.

He also has beeen able to spot the generalizations regarding the number properties called the commutativeproperty, the associative property, and the distributive property.

	Commutative	Associative
+ :	$a + b = b + a$,	$a + (b + c) = (a + b) + c$
· :	$ab = ba$,	$a(bc) = (ab)c$

Distributive

$a(b + c) = ab + ac$

Question: Now that you know what 5x6 is how would you use all of this information to find 5x7 ?

Extended project: Extend this idea to build all your tables and show how you would find the following products.

5x8, 7x9, 12x17, 23x31 .

synthesis cont.

4. Assume that you know the associative and commutative properties for multiplication andaddition and that you know the distributive property for multiplication over addition.

Also , assume that you know all the " addition facts" and three multiplication facts.

$$1 \times 1 = 1$$

$$2 \times 1 = 2$$

$$2 \times 2 = 4$$

From this information , outline the steps that could be followed (using only the information given and correct reasoning) to build all the multiplication facts.(Up to 10x10)

5. Invent a new number system with only the three symbols

△ , ∢ , ▲

and show how you would represent 0,1,2, ... 15 in this new system.

How do the properties of +, and · ; in your system compare with the xxxx properties of these operations in our base 10 system.

6. Pick out only what is necessary from the defimitions and theorems in connection with divisibility, Fibonacci numbers, and the Axiom of Mathematical Induction, sothat you can prove

$$f_{a+b} = f_{a-1}f_b + f_af_{b+1} .$$

Place your definitions and theorems in the order they would be found in a proof of the above theorem.

7. Pascal's triangle is given at the right.

Expand $(a+b)^2$

$(a+b)^3$

etc

1 1
1 2 1
1 3 3 1
1 4 6 4 1

Discuss the relationship between Pascals Triangle and these expansions. How can you continue Pascals Triangle?

Find the 5th row in Pascals Triangle.

CONSTRUCTION

1. Given: 6 stick: all the same length.

Problem: Use these 6 sticks to make 4 equilaterals triangles, all triangles the same size, with the side of each triangle formed by one of the 6 sticks.

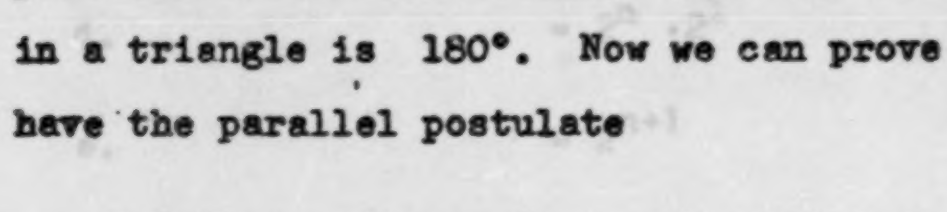
Everyone(that I have observed) trying this problem for the first time follows the same preliminary trial-and-error moves . Eventually most people see that their approach is suggesting that the problem cannot be solved.

Construction question: Think about what you have been doing to see if you have placed any restriction on your approach that is not necessary. With a slight change in your thinking, a different way of looking at the situation, you may be able to construct the 4 triangles.

2. Up to this point we have been unable to prove(using our postulates and definitions) that the sum of the measures of the angles in a triangle is 180°. Now we can prove this because we have the parallel postulate

P. Given a line, L_1 , and a point, A, not on L_1, there is exactly one line , L_2, which contains A such that L_1 and L_2 do not intersect.
(the last line could read ... are parallel.

Construction question: Where would you construct a line in the diagram below so that the line would help you prove that the sum of the measures of the angles of ΔABC is 180°?



PRECEDING PAGE MISSING

translation cont.

6. Write the members of set S.

$$S = \left\{ x \;\middle|\; (x \in I) \wedge (x < 5) \wedge (x \geq -3) \right\}$$

- for a student used to this type of question it is translation
- it could be used as an interpretation question

7. Here is a proof that $2^n + 2^n = 2^{n+1}$.

a. $2^n + 2^n = 2^n \cdot 1 + 2^n \cdot 1$

b. $= 2^n \; (1 + 1)$

c. $= 2^n \cdot 2$

d. $= 2^n \cdot 2^1$

e. $= 2^{n+1}$

Which property of the real numbers is used in going from step a. to step b. ?

8. If $2 = x^{x^{x^{\cdot^{\cdot^{\cdot}}}}}$, find x.

In one step, this equation can be rewritten as

$2 = x^2$.

Find the "step" which was used.

9. $\triangle + \square$ 3. The blanks are to be filled in with whole numbers.

Q: How many different solutions are there for this equation?

Note: $\triangle\!\!\!\!1 + \boxed{2} = 3$ and $\triangle\!\!\!\!2 + \boxed{1} = 3$ are two diff. solutions.

trans. cont.

10. ____ - ____ = 3.

How many different solutions does this equation have? (Each solution is an ordered pair of whole numbers.)

11. 3 - ____ = ____. Same question as 10.

12. ____ + ____ + ____ = 3

How many different solutions does this equation have? (Each solution is an ordered triple of whole numbers.)

Write all your solutions below.

INTERPRETATION

1. The "traditional" textbook approach.
Present a problem with the method of solution and 20 practice problems.

2. We have proven that $R + 1/R \geq 2$ when $R > 0$.

Use the above to prove

$$x/y + y/x \geq 2 \quad \text{when} \quad XY > 0 .$$

3. How are the graphs of $y = 3x$ and $y = 3x + 1$ related ?

4. Graph the equation $y = x^2 + 6x + 10$.
Use the graph to show someone else in class that the equation has no real number solution .

5. When Jerry read the above assignment he started thinking.
He rewrote the equation as

$$y = x^2 + 6x + (\ \ ) + 10 - (\ \ )$$

then as $y = x^2 + 6x + (9) + 10 - (9)$

then as $y = (x + 3)^2 + 1$.

He then reasoned that the square of a real number is always zero or larger. How did he use this idea to reason that regardless of what x is, y is 1 or larger ?

6. What does the information in 5. have to do with question 4. ?

7. Use the distributive property to prove (informal proof) that

$$2^n + 2^n = 2^{n+1} .$$

8. (Once 7. has been done correctly.)
Can your proof be adapted to show that $3^n + 3^n = 3^{n+1}$?
. . . or generalizing, to say that $a^n + a^n = a^{n+1}$?
Look at your entire proof.

Interp. cont.

9. (h, k, r) is to $(x - h)^2 + (y - k)^2 = r^2$ as

______ is to $x^2 - 6x + y^2 + 16y = 0$.

a. $(3, -8, \sqrt{73})$
b. (0, 0, 0)
c. (6, -16, 0)
d. (3, -4, 5)
e. none of the above

9A (Analogy quest. - write as matching)

a. $2y = x - 1$ is to straight line as
$xy = 1$ is to ______.

c. Hyperbola
b. Circle
a. Ellipse
d. Straight line
e. Point

10. Napoleon and one of his armies were on a long march when they came to a wide river. Napoleon offered 1,000 francs to anyone who could determine the distance across the river.

One of his soldiers stepped forward, tilted the visor of his cap very carefully, then turned ~~very carefully~~ 90° and hesitated. He then paced off the distance to an object he had sighted after the 90° turn.

When he came back he told Napoleon the distance across the river and claimed his reward. Using congruent triangles, explain the soldiers method.

(Evaluation: Discuss the accuracy of this method which admittedly will give only an approximate answer.)

(~~Examin~~ Interpretation: Describe the contours of the land that would enable the soldiers method to be as accurate as possible.)

11. Ben, a 3rd grader, knew his multiplication tables for "ones", "twos", and the "threes" table up to and including $3 \times 5 = 15$. He had also seen the "pattern" $2(3 + 1) = 2\cdot3 + 2\cdot1$ and knew that all the numbers he had used would "fit" this pattern. Also, the teacher had assured the class that this pattern was never broken. Knowing this how could he find 3x6 ?

12. If Ben reasoned $3\cdot6 = 3(5+1) = 3\cdot5 + 3\cdot1 = 15 + 3 = 18$ with no help, where would his reasoning be placed in the categories used in the Taxonomy of Questions ?

APPLICATION

1. Imagine that Bill is on a perfectly flat surface. He takes a walk from A to B but follows a"crooked path".

   We want to know the distance from A to B"as thecrow flies". Here is a description of Bill's path.

   From A he walked north 1 mile to X.

   From X . . . east 3 miles ... Y.

   From Y . . . north 2 miles ... Z.

   From Z . . . east 1 mile ... B.

   What is the distance from A to B ?

2. A box contains 3 defective light bulbs and seven good ones.

   Three consecutive bulbs are drawn out.(without replacement)

   a. What is the probability that at least one good bulb is drawn out?

   b. What is the probability that all three are good if the first is good?

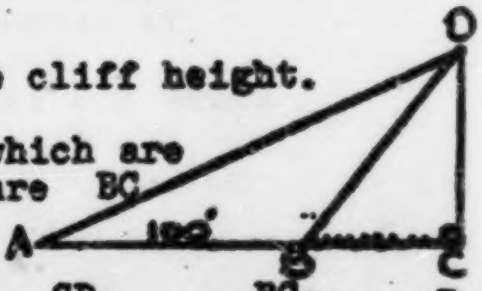
   (Kemeny ... p. 145)

3. Find the height of a tree without actually measuring it.

   (To be used after a unit on indirect measurement and measuring devices.)

4. A surveyor wishes to know the distance CD, the cliff height.

   With a transit &tape he measures ∠A , ∠B, and AB which are 30°,60°, and 100' respectively. He can't measure BC because there is a lake in between.

   This was enough information to find CD and BC. CD= ___. BC= ____.

   (To be used only after work with linear and quadratic equations where the variables are trig functions.)

5. Lazy Sam wants to make a round trip from A to B back to A. (distance from A to B is 30 miles.) Sam wants to average 60 mph for the entire round trip. Going from A to B, Sam loafs along and averages 30 mph. What must he average on the return trip so that his average speed for the entire round trip is 60 mph?

ANALYSIS

1. We solved the equation $0 = x^2 - 2x - 15$ by factoring

   obtaining $0 = (x - 5)(x + 3)$.

   Use the real number properties to complete the proof that the solutions of the given equation are $x=5$ and $x = -3$.

   a. $x^2 - 2x - 15 = 0$ Given

   b. $(x-5)(x+3) = (x^2 - 2x - 15) = 0$ ________

   c. ________

   or

   $x + 3 = 0$ ________ ________

   d. $(x - 5) + 5 = 0 + 5$

   or

   ________ ________

   e. thus, $x = 5$ or $x = -3$ simplification of d.

2. Prove: If n is a whole number, then $\frac{n(n+1)}{2}$ is a whole number.

3. Prove: $a + 1/a \geq 2$ if $a>0$.

4. $2 = x^{x^{x^{x^{\cdot^{\cdot^{\cdot}}}}}}$. There is a solution for x.

   Find x, stating the reasons used in your solution.

   Note: "Construction" type thinking is required if this is a brand new type of problem. By presenting the above problem with the novel method of solution we would then be able to present the next problem at the interpretation level.

   $x = 1 + 1 + 1 + \ldots$

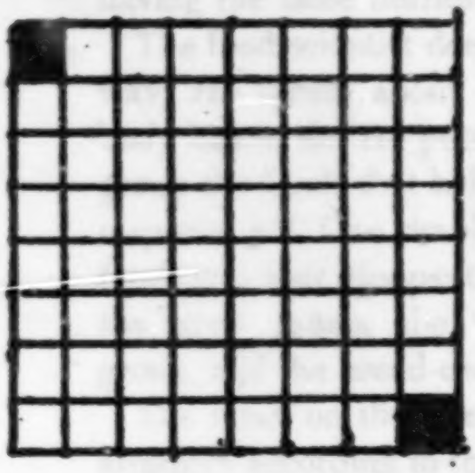
   Find x by using an idea much like that used in the first question. Notice that in both of these sequences we can see a "sequence within a sequence".

analysis cont.

5. "The Checkerboard Problem "

Students are very apt to use examples of indirect proof in ordinary conversation. Yet the formal use of indirect proof is very often an obstacle to a student trying to learn how co construct proofs. Part of the difficulty is in knowing when to try an indirect proof. Thus, the "Checkerboard Problem" is not suggested as being important because of the mathematics but because it indicates how an indirect proof may be written, gives the student a chance to spot the assumption and the contradiction , and gives some indication that if a direct proof fails, then an indirect proof may be tried.

Problem



Given a checkerboard (8x8) with the opposite corners removed as shown . This leaves 62 squares on the board.

Given 31 dominoes. Each domino covers exactly two adjoining squares.

The 31 dominoes will then cover 62 squares.

Question Will the dominoes cover the checkerboard with a pair of opposite corners removed ?

At first it appears obvious that this is an easy job. Then it looks more difficult. Eventually people begin to wonder if there is a solution. Some will continue their search believing that there must be a solution - otherwise why would anyone ask the question ?

Paragraph proof that this problem has no solution

"Color the checkerboard with black and white squares. Now we see that each domino must cover a white square and a black square. Now let us imagine that we have covered the cut-up checkerboard with the 31 dominoes. What color are the squares that were cut off the board? This means that the 31 dominoes cover 30 ______ squares and 32 ______ squares. But the 31 dominoes must cover 31 white and 31 black squares. This means that the board cannot be covered with the 31 dominoes."

Analysis question. What kind of proof is this? Analyze the proof by writing the assumptions, inferences, and contradictions which occur in the proof.

PRECEDING PAGES MISSING

The Four Food Groups

An easy way to make sure you get all the nutrients is to use the four food groups as a guide. The most common foods have been divided into four large groups by food scientists. If you were grouping foods, there are many kinds of groups you could make. You might put together all the foods with chocolate in them. Or you might put together all the kinds of foods you eat for breakfast. Or you might put together foods having the same nutrients.

The food scientist does it a different way. He thinks about the jobs your body has to do. He puts together as a group the foods that help the body do a special job. One simple plan divides foods into four groups: the milk group, the meat group, the vegetable-fruit group, and the bread-cereals group.

The chart on the next two pages is arranged according to this plan. Notice that the chart doesn't list the nutrients. Instead, it shows four different groups of foods which contain these nutrients.

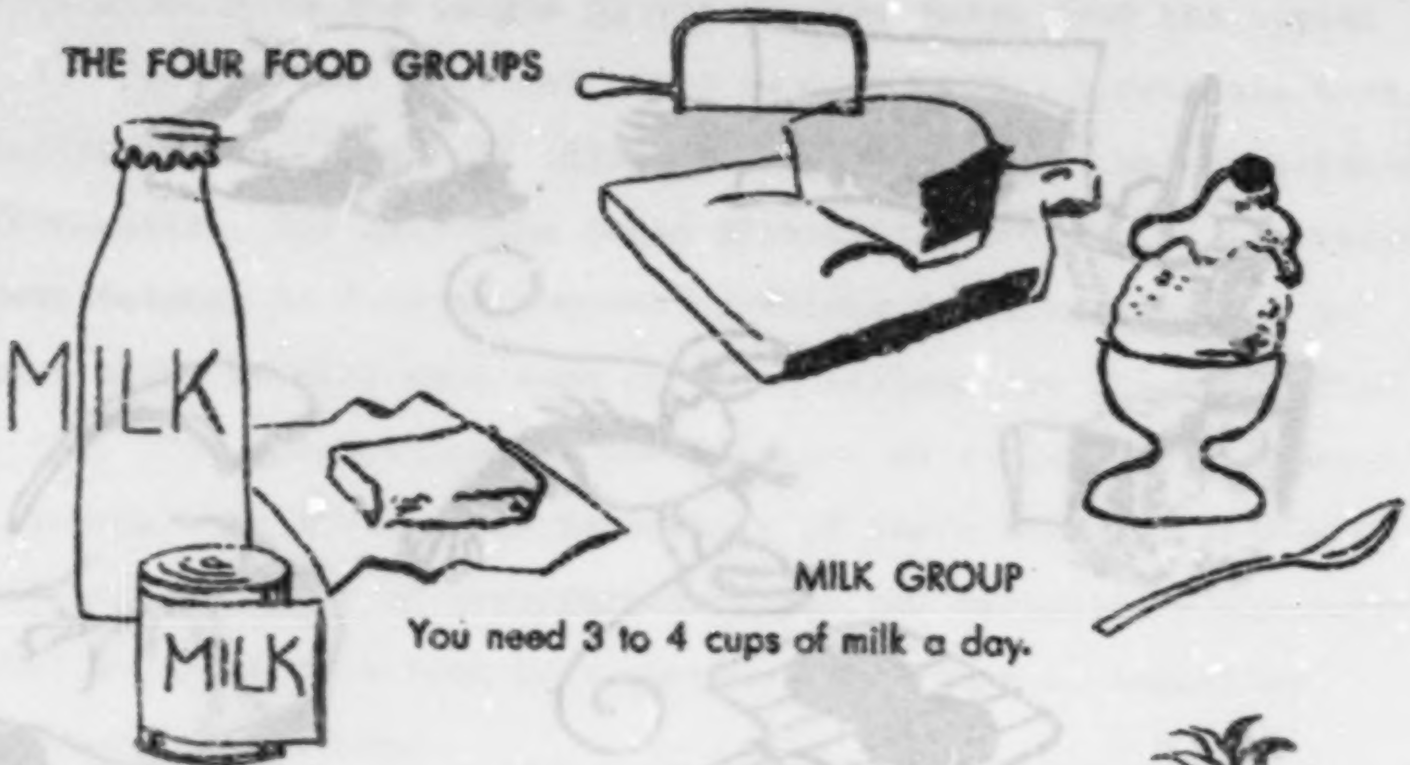
Try this. Check your own meals with the four food groups. Are you eating foods from each of the groups every day? Notice that the number of servings from each group is important, too. It isn't necessary to have a food from each group at each meal. But you should have enough food from each group every day.

You will notice that fats and sugar are not shown at all. The experts who made the plan felt that most people get enough fat when they put butter on bread or eat foods prepared with cooking oils. The experts felt the people get enough sugar in jelly, cake, and other sweet foods.

But remember that people are different. Some people need more food than other people. Ballplayers usually need more food than typists. Big people usually need more food than small people. Adults usually need more food than very young children. Even two adults the same size, weight, and age may need different amounts of food. The food groups chart tells you what kinds of foods to eat every day. It doesn't tell you how much *you* should eat.

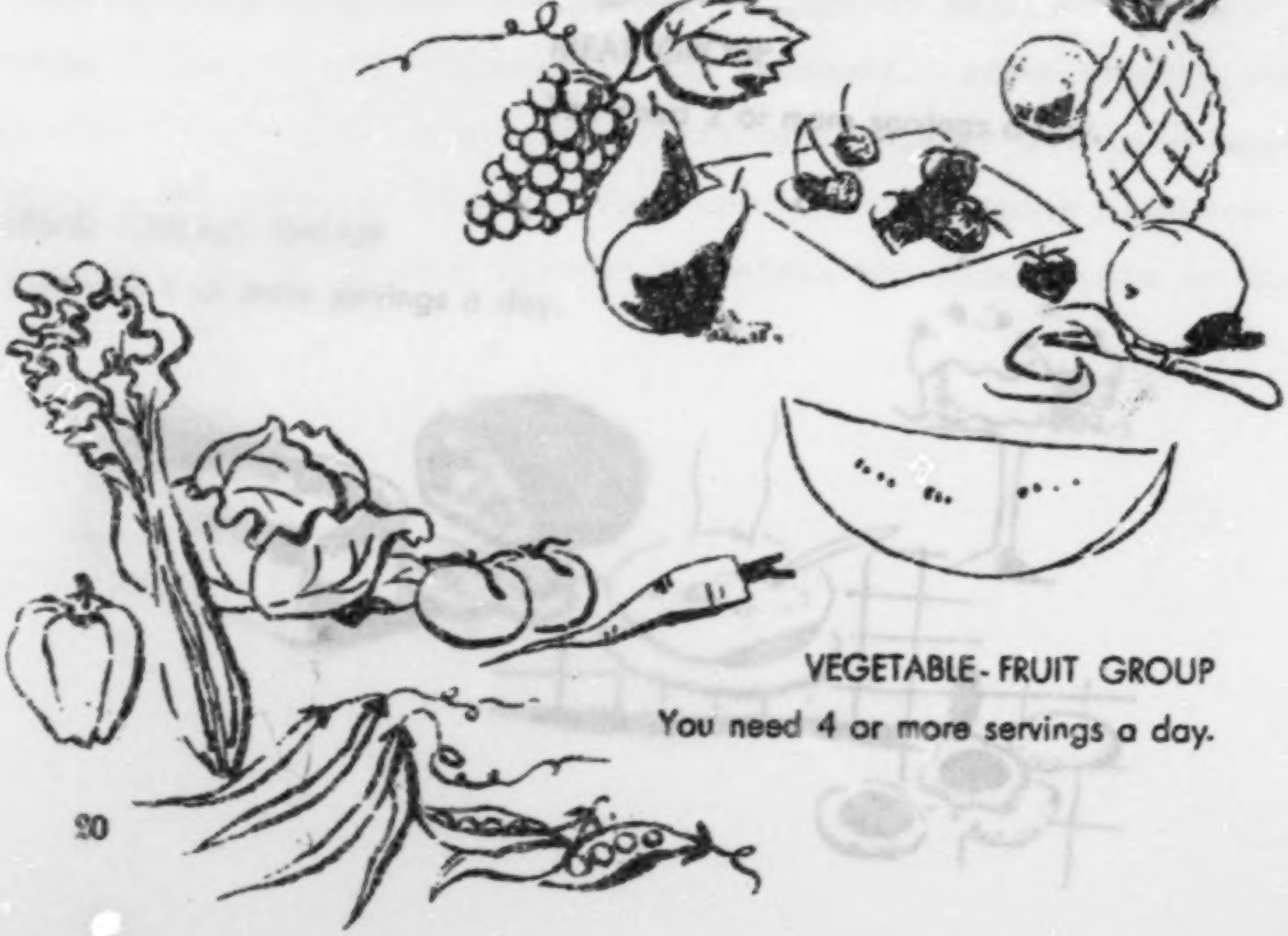
The chart doesn't tell you that you have to eat just certain foods, either. If you don't like lamb, for example, you may eat hamburger, or chicken, and still have a good diet. If lobster is too expensive, you can eat eggs, or cod, or haddock. Strawberries make some people's skin turn red and itchy. Those people are allergic to strawberries. They can eat cherries, pears, or any one of many other fruits or vegetables instead. Two people can eat completely different foods and each one get all the nutrients he needs for growth and good health.

THE FOUR FOOD GROUPS



MILK GROUP

You need 3 to 4 cups of milk a day.



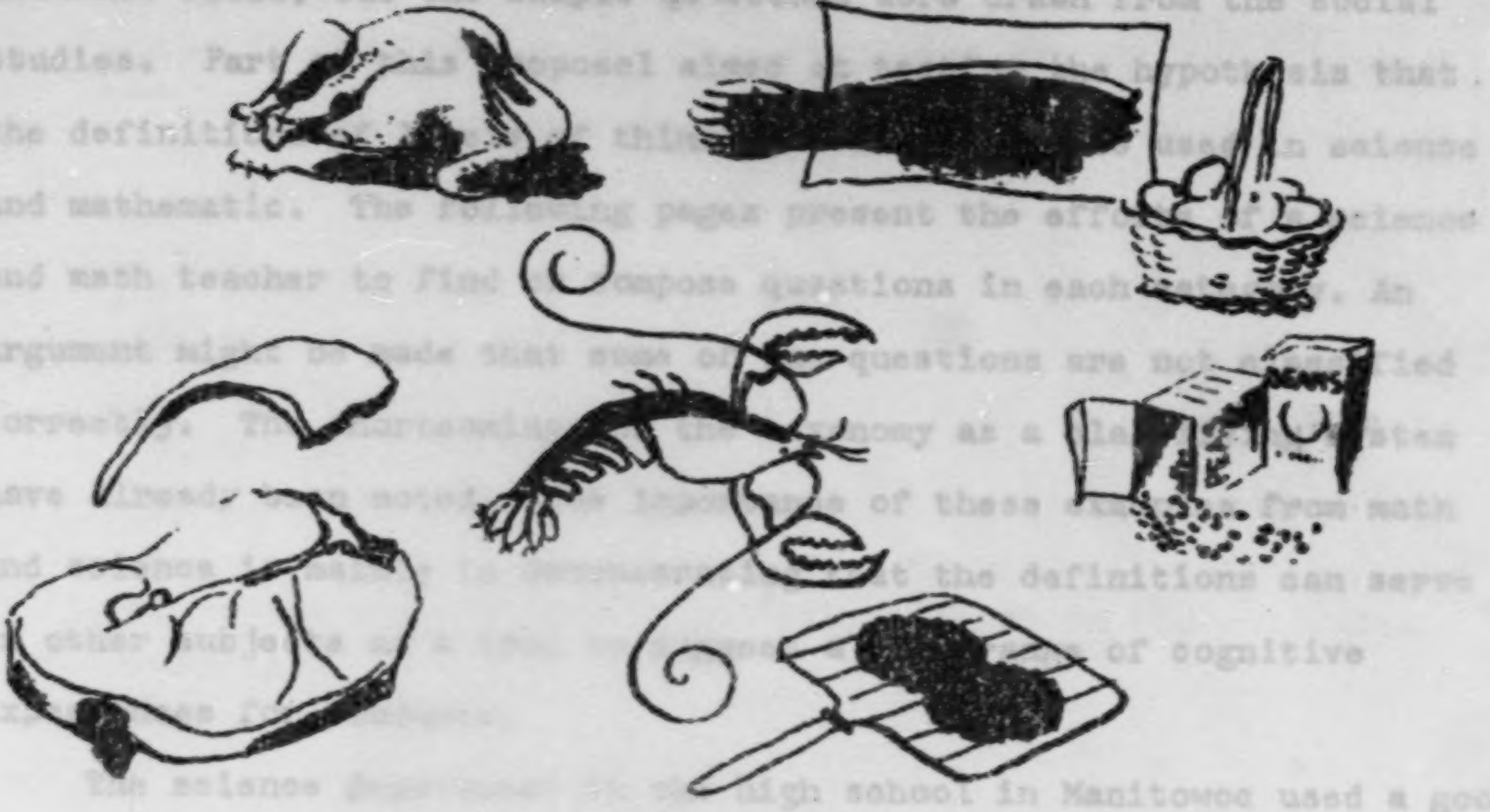
VEGETABLE-FRUIT GROUP

You need 4 or more servings a day.

USING THE TAXONOMY OF QUESTIONS IN SCIENCE AND MATHEMATICS

The original rationale on questioning was designed to apply to any academic field, but the sample questions were drawn from the social studies. Part of this proposal aimed at testing the hypothesis that the definitions [illegible] of thinking [illegible] used in science and mathematic. The following pages present the efforts of a science and math teacher to find or compose questions in each category. An argument might be made that some of the questions are not classified correctly. The shortcomings of the taxonomy as a classification system have already been noted. The importance of these examples from math and science is mainly in [illegible] that the definitions can serve in other subjects as a [illegible] of cognitive experiences for students.

The science department in the high school in Manitowoc used a good approach in introducing [illegible] to the teachers. After studing the categories of questions the teachers performed one of the experiments in the new PSSC physics course. They then used the three exercises included at the end of [illegible] section to relate the experiments to the taxonomy.

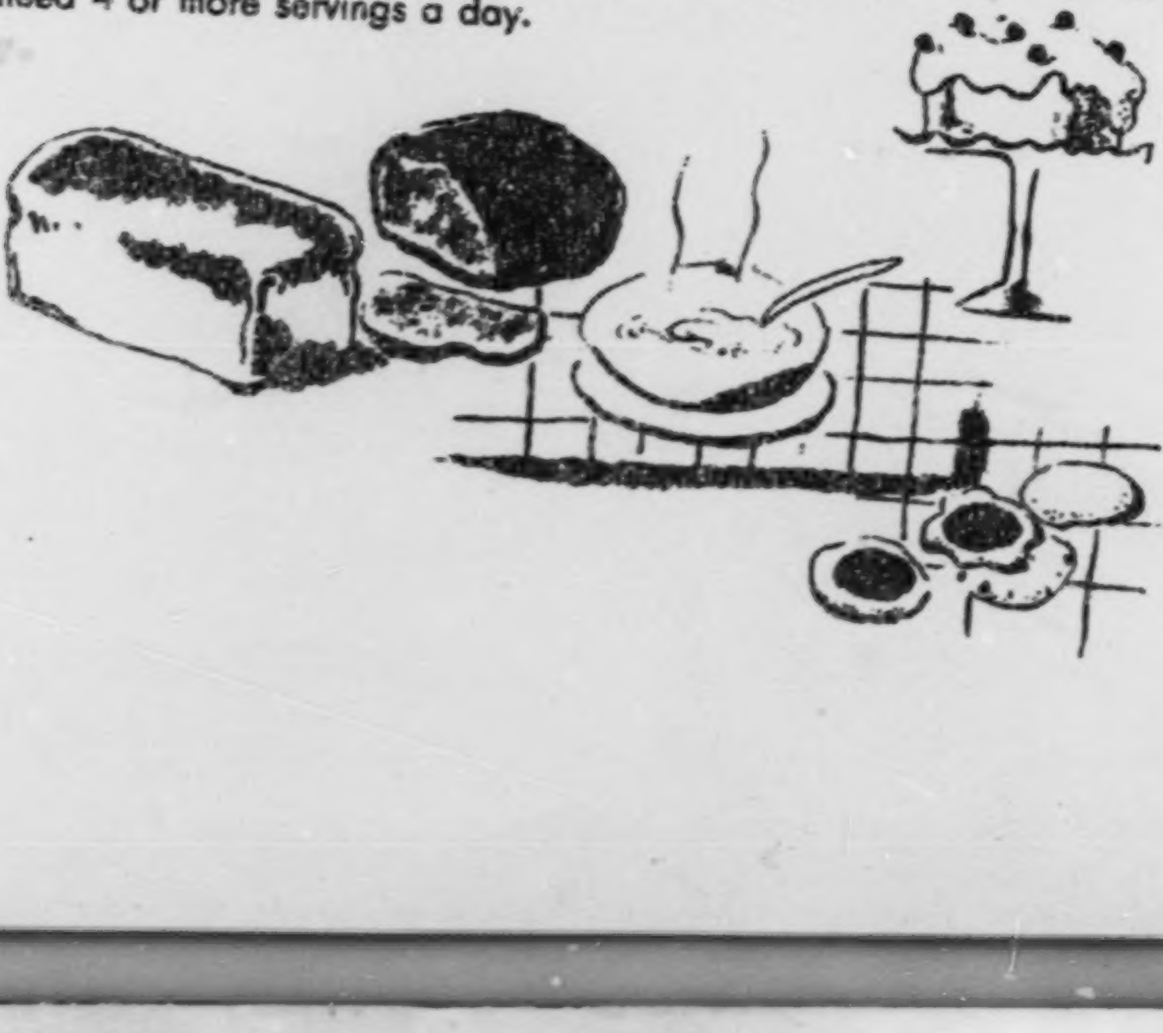


MEAT GROUP

You need 2 or more servings a day.

BREAD - CEREALS GROUP

You need 4 or more servings a day.



USING THE TAXONOMY OF QUESTIONS IN SCIENCE AND MATHEMATICS

The original rationale on questioning was designed to apply to any academic field, but the sample questions were drawn from the social studies. Part of this proposal aimed at testing the hypothesis that the definitions of levels of thinking could easily be used in science and mathematic. The following pages present the efforts of a science and math teacher to find or compose questions in each category. An argument might be made that some of the questions are not classified correctly. The shortcomings of the taxonomy as a classifying system have already been noted. The importance of these examples from math and science is mainly in demonstrating that the definitions can serve in other subjects as a tool to suggest a wide range of cognitive experiences for students.

The science department in the high school in Manitowoc used a good approach in introducing taxonomy to the teachers. After studing the categories of questions the teachers performed one of the experiments in the new PSSC physics course. They then used the three exercises included at the end of this section to relate the experiments to the taxanomy.

MEMORY

1. State the Pythagorean Theorem
2. Write the symbol for "greater than".
3. What is the name of the curve identified by the equation $y = 3x^2$?
   (memory if he knows the general form) [illegible] if he [illegible]
   [illegible]
4. What is the name of the following property of real numbers?

   For each real number, b, there exists a real number, -b, such that $b + (-b) = 0$.

   a. Commutative property of +
   b. Associative " " +
   c. The Closure property " +
   d. The Identity property" +
   e. The property of Inverses for +

5. Write the expression for the discriminant in the quadratic formula.

Question is asking for specific facts, definitions, axioms, theorems, common vocabulary, or important generalizations and all that is called for is pure recall .

TRANSLATION

1. We have worked on the following type of problem and there are several examples in the book (pp 666) Use these examples to outline a procedure for solving the type of problem below.

   Joe can mow Mr. Greens lawn in 3 hours. His younger brother, Bill, works slower and needs 6 hours to do the job.

   Working together, how many hours do they need to mow the lawn ?

   (Can easily make into a MC item.)

2. Graph the equation $y = 3x + 1$. (student has had practice in graphing.)

   (note: going in the reverse direction - from the graph to the equation - can easily place the question in a higher category in the Taxonomy.)

3. Rewrite the following statement by replacing the quantifiers with the words or phrases which they represent.

   $$\forall_a \exists_x (a + x = 0).$$

4. Rewrite the following using sigma notation. ($\sum$)

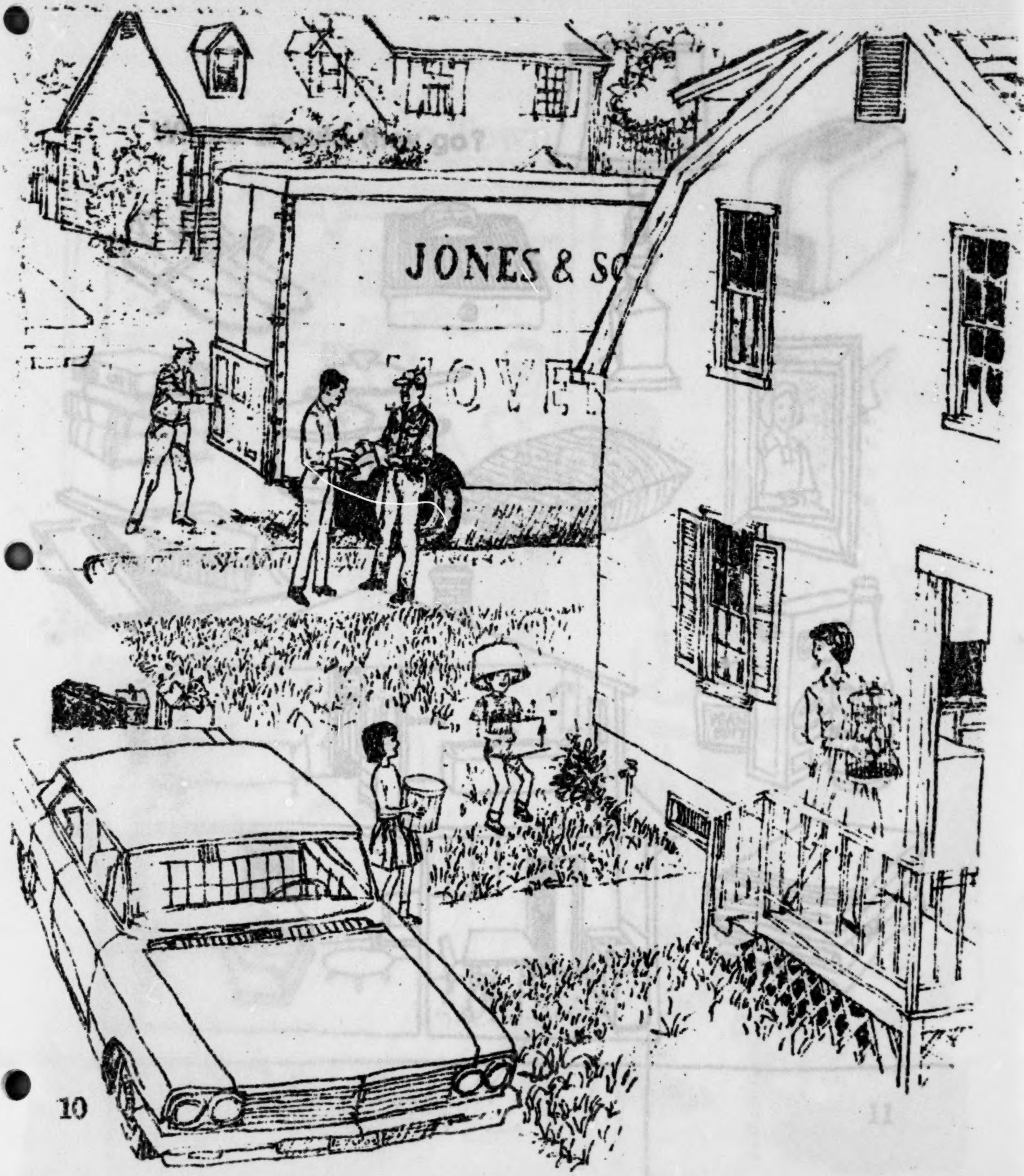
   $1 + 2 + 3 + \ldots + n = \frac{n(n+1)}{2}$ Answer : $\sum_{a=1}^{n} a = \frac{n(n+1)}{2}$

5. We have proven that $a + 1/a \geq 2$ when a is a positive real number.

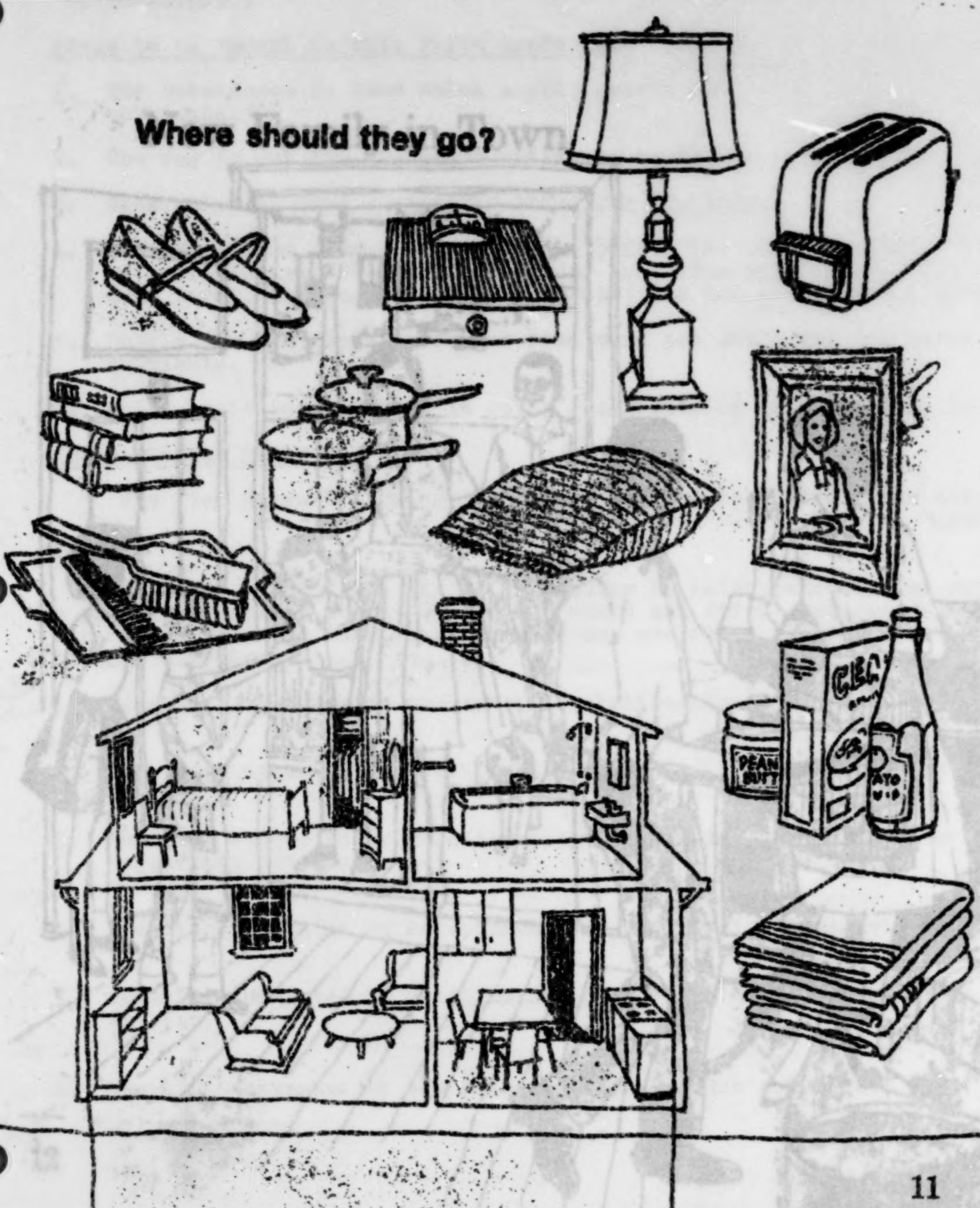
   Find the substitution that may be used to easily prove

   $x/y + y/x \geq 2$ when x and y are reals such that $xy > 0$.

PRECEDING PAGES MISSING


JONES & SO
MOVE

Where should they go?


PEAN
BUTT
GEL
ATO
WIP

QUESTIONS FOR A FIFTH GRADE SCIENCE UNIT

(The object of this exercise is to demonstrate that a knowledge of the six relationships in interpretation helps teachers to form a variety of questions.)

Ideas to be taught in this Fifth Grade Unit (Quoted from The MacMillan Science/Life Series 5)

1. The substances in food which supply growth and energy are called nutrients.

2. One way to get [illegible] nutrients is to eat a variety of foods.

3. Each [illegible] for the body.

4. [illegible] person get all the nutrients in an American [illegible] are: The milk group, the meat group, [illegible], and the bread-cereal group.

5. People who [illegible] can still get the necessary nutrients.

6. Skill [illegible] catalog in [illegible] school library.

Instructional Material

The four pages [illegible] from the fifth grade science text.

[illegible] interpretation [illegible] write [illegible] would [illegible] fifth grade students [illegible] may use [illegible]

1. Questions suggested by comparative relationship [illegible]

2. Questions suggested by relationship [illegible]

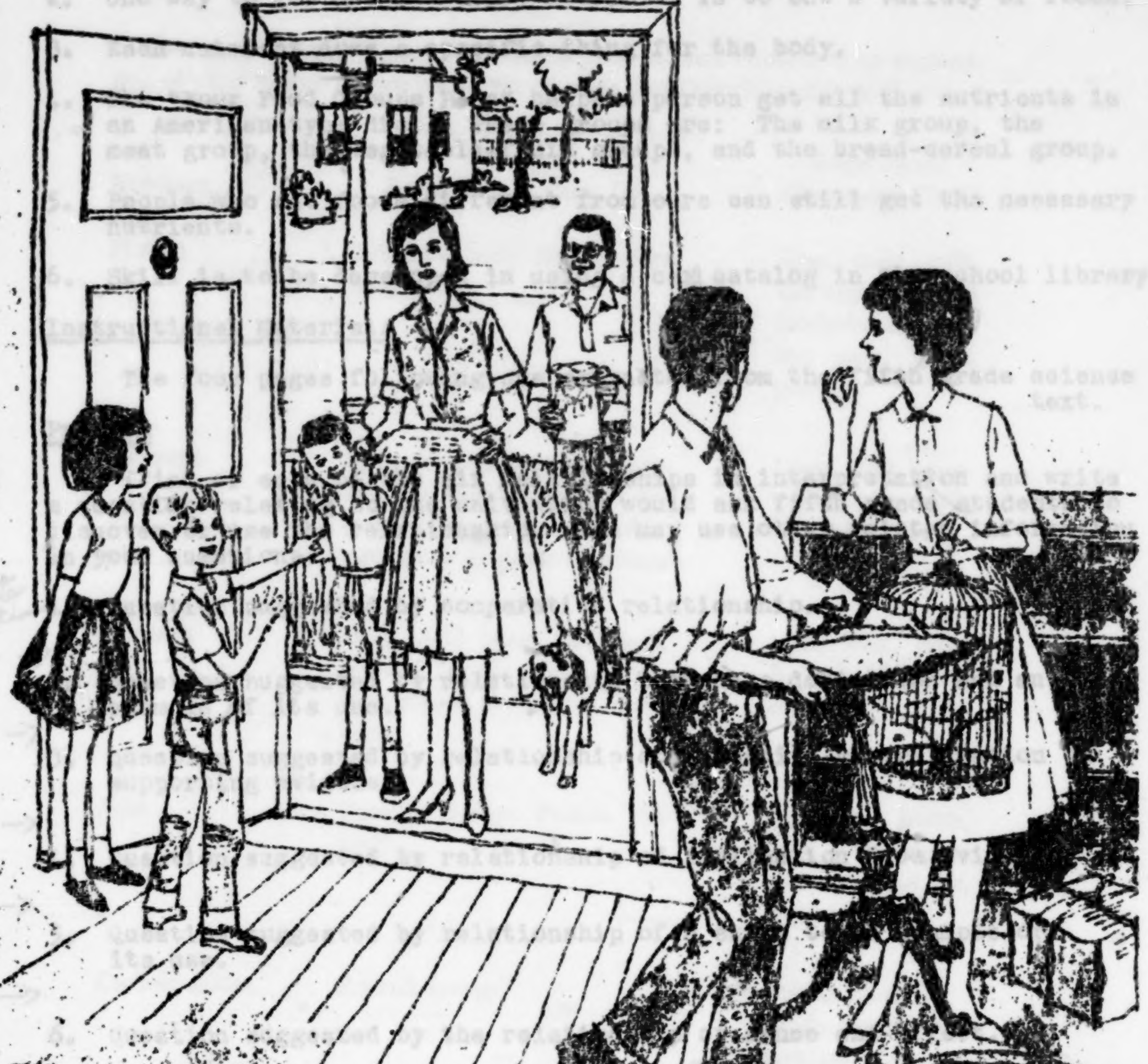
3. Questions suggested by relationship [illegible] supporting [illegible]

4. Questions suggested by relationship [illegible]

5. Questions suggested by relationship of [illegible] its use.

6. Questions suggested by the relationship [illegible]

New Family in Town



QUESTIONS FOR A FIFTH GRADE SCIENCE UNIT

(The object of this exercise is to demonstrate that a knowledge of the six relationships in interpretation helps teachers to form a variety of questions.)

Ideas to be taught in this Fifth Grade Unit (Quoted from The MacMillan Science/Life Series 5)

1. The substances in food which supply growth and energy are called nutrients.

2. One way to get the necessary nutrients is to eat a variety of foods.

3. Each nutrient does a specific thing for the body.

4. The "Four Food Groups Plan" helps a person get all the nutrients in an American-type diet. These groups are: The milk group, the meat group, the vegetable-fruit groups, and the bread-cereal group.

5. People who eat foods different from ours can still get the necessary nutrients.

6. Skill is to be developed in using a card catalog in the school library.

Instructional Materials

The four pages following are extracted from the fifth grade science text.

Problem

Think of each of the six relationships in interpretation and write a question relating to the unit which would ask fifth grade students to discover or use the relationship. You may use other related information in your questions.

Write questions here ->

1. Question suggested by comparative relationship.

2. Question suggested by relationship between a definition and an example of its use.

->

3. Question suggested by relationship of inductive generalization to supporting evidence.

->

4. Question suggested by relationship of implication from evidence.

->

5. Question suggested by relationship of a skill to an example of its use.

->

6. Question suggested by the relationship of cause and effect.

->

PRECEDING PAGESMISSING

Here are the nutrients your body needs. Next to each nutrient is an explanation of what it does for you and a list of some foods which contain it.

Nutrients	*Some Things They Do*	*Some Foods Containing Them*
Protein	**Builds the body. Repairs worn body parts.**	**Eggs, meat, milk, fish and other sea food, cheese, poultry, peas, beans, peanuts.**
Vitamins	**Keep the body working properly. Help prevent certain diseases. Help keep eyes, skin, and gums in good condition.**	**Liver, fruit, vegetables, eggs, milk, lean meat, fish.**
Minerals	**Help build bones and teeth. Needed for the blood to deliver oxygen to the cells of the body.**	**Milk, liver, dried fruit, shellfish, vegetables.**
Fats	**Furnish energy. Protect the body.**	**Fat meat, butter, milk, oleomargarine and salad oils, eggs, nuts.**
Carbohydrates	**Furnish energy.**	**Cereals, bread, candy, sugar, potatoes.**
Water	**Makes up most of the body.**	**Drinking water, almost all foods.**

~~of an insect? In what ways can insect carriers of disease be controlled?~~

~~7. How does the human body fight disease germs which have entered it?~~

~~8. Discuss the ways in which diseases can be controlled.~~

~~9. If you were planning a trip to a foreign country, what preparations would you make with respect to your health?~~

~~10. Discuss the sanitation of each of the following as it relates to your health or that of your family:~~

   ~~*a.* Your water supply.~~
   ~~*b.* A soda fountain.~~
   ~~*c.* The meat market.~~
   ~~*d.* A "hot dog" stand.~~
   ~~*e.* Sewage disposal in your community.~~

PRACTICE IN PROBLEM SOLVING

While waiting in her doctor's office, Jane picked up a magazine and read an article about an experiment to determine the cause of colds. Below is a summary of what she read:

"By working with volunteers, two university doctors appear to have found, grown, and transmitted one kind of germ of whatever it is that causes the common cold.

"Scientists do not know exactly what causes colds. It is probably a virus or several viruses. Isolating the organism is an important step in learning how to kill it.

"Scientists have believed for several years that they could grow the cold germ in chicken eggs which had been incubated and injected with the discharge from the nose of a person ill with a cold.

"The doctors injected some incubated eggs with some of the nasal discharge of a man who had a cold. They let the germs grow for several days; they then transplanted some of them to another group of incubated eggs, and continued the transplanting process. They believed the cold germ remained alive through five such transplantings from one group of incubated eggs to another.

"To test their belief, the doctors asked for 19 volunteers, isolated them for a time, and then carefully checked them for colds. None had a cold. Nine of the 19 volunteers were then injected with matter from the fifth batch of incubated eggs. This was the fifth generation of the cold germs taken originally from the man ill with the cold. To serve as controls, the other 10 volunteers were injected with a harmless fluid. After 5 days two other doctors checked the 19 men. Six of the nine injected with the cold germs developed colds. One of the 10 controls had a trace of a cold.

"The experiment was repeated. The second time four of the nine injected with cold germs took colds and three others had traces of colds. None of the controls developed colds the second time.

"As a final check five of the controls were injected with matter from the eggs and five were again injected with the harmless fluid. Four of those injected with cold germs took colds. None of the five controls had even a trace of a cold."

Study the article carefully and answer the following:

1. Clearly state the problem the doctors were attempting to solve.
2. What hypothesis did they set out to test in their experiment?
3. What things did they assume or take for granted in their experiment?
4. In what ways were their experiments controlled?
5. What was the variable factor in their experiment?
6. What factors were kept constant?
7. State the conclusion that might reasonably be drawn from the evidence as reported.

ALICE'S OXIDATION EXPERIMENT

General Observations:

The point of the exercise is on establishing proper controls in experimentation. This kind of question is difficult because students usually don't have enough general knowledge to hypothesize the factors that are likely to need control. In this case the possibilities are suggested in the question.

Manipulated Questions:

1. The student could be asked to draw a picture of the experimental apparatus. (Translation)
2. Any number of interpretation questions can be composed by varying the amount of information and in focusing on different aspects of the problem.
   - A. Ask the students to comment on the quality of Alice's thinking when she reasoned that one-fifth of the air in the graduate should combine with the iron. On a common sense level the answer calls for interpretation.
   - B. Cut off the information after Alice's observation that she got different results the second time. Ask students to hypothesize why results were different.
   - C. Eliminate from the questions the suggested ways of controlling the variables. Have the students suggest ways of controling each variable.
   - D. Present the problem as it is and ask the students to suggest other factors that might have entered into the varying results on the second experiment. (An example would be a different amount of iron filings.)
   - E. How could Alice control pressure and temperature of the room without using a barometer or thermometer?
   - F. How could Alice prove that the change in water level wasn't caused by a reaction between glass and water or between air and water.
3. Analysis thinking could be tested by presenting a different problem that brings out the same ideas on a controlled experiment. An example follows:

   "Jane noticed that water going down a drain in a sink revolved in a whirlpool. She wondered if the water always revolved in the same direction. She filled the sink and opened the drain ten times. Five times the water whirled in a clockwise direction and five times in a counterclockwise direction. She concluded that the direction was simply a matter of chance--similar to the flipping of a coin. Was her conclusion justified?"

COLLAPSING CAN EXPERIMENT

General Observations:

The goal is to lead students to distinguish between facts and assumptions. The question as it stands calls for interpretation. The only reason that it is not analysis is because it violates the characteristics of application.

Manipulated Questions:

1. Have students compose definitions of fact and assumption. This could be done if the teacher removed the definition of assumption from the question and marked each of the 17 items as "fact" or "assumption." The students would study the items and deduce the definitions.

2. As an interpretation question the students could be asked to choose an assumption in the experiment and describe how it could be changed into a fact.

3. To teach the idea of facts and assumption on the analysis level, an entirely different situation could be presented in which an experiment is described and conclusions drawn which have a questionable assumption. The students would be asked to comment on the quality of the conclusion. Although the following example is not from science, it illustrates an appropriate problem.

   Comment on the quality of the reasoning: "I observed a scene today which illustrated a flaw in our observance of American democracy. I was sitting in a car waiting for a friend in the Manitowoc business section. A car full of Negroes stopped in front of the ______ Hotel. The occupants appeared to be a family, including father, mother and three children. The car was a newer model and all members of the family were dressed neatly in vacationing clothes. The man went into the hotel. A few minutes later he emerged with a frown on his face, climbed into the car, and drove off. I was ashamed that Negroes should be turned away from a hotel in our city."

4. I don't see how this topic lends itself to a pure synthesis question. However, there are possible interpretation questions that tond toward syntheses by their divergent characteristics. An example follows: Describe an experiment in which a scientist bases a conclusion on a questionable or false assumption.

5. Describe several approaches to solve a scientific problem. Have students determine which method is best. Include a methodological or logical weakness inherent in each approach. In one case include a questionable assumption. The problem would be one in evaluating the most acceptable method.

PRECEDING PAGE MISSING

4. Synthesis thinking could be practice in a problem such as the following:

   > "Devise a problem that could be tested by scientific experimentation. Describe procedures for solving the problem. Determine the variables that you would control and the ones you would manipulate."

5. Would it be better to perform Alice's experiment twice using the same graduated cylinder and water container or use two graduated cylinders and two water containers an d perform two trials at the same time? (Evaluation)

COLD GERM EXPERIMENT

General Observations:

This problem appears to be designed to give practice in using ideas on experimentation developed previously by the students. The thinking is interpretation because the directions in the seven questions are explicit.

1. The problem could be raised to the analysis level simply by making the questions more general, such as the following:

   > "Analyze the procedures and results of the experiment." This in effect should say to the students that they must identify the problem, hypotheses, assumptions, controls, placeboes, variables and conclusions." To make this question possible the students would need previous instruction in the elements of scientific research and also in the meaning of "analysis".

2. By restricting the information provided to the students the thinking could be raised to synthesis. The question would state that two doctors believed that they were able to transmit the germs responsible for colds through five transplantings in incubated chicken eggs. The problem would be to devise procedures to determine whether or not the doctors had been successful.

3. The teacher could ditto the responses of the students to the previous problem and give them to all members of the class. The question would be to determine which procedure was the best. This would call for evaluation.

PRACTICE IN COMPOSING QUESTIONS

After teachers have experience in classifying, analyzing, and manipulating questions, they are ready to compose their own. At first they are given subject matter and suggestions on possible types of questions. This step is illustrated by the three following exercises. The subject matter for the first lesson is composed especially for the lesson, but in the second it is taken directly from A New Hometown by Ralph Preston et al. (D. C. Heath, 1964), and in the third from The Macmillan Science Life Series by J. Darrell Bernard et al. (The Macmillan Co., 1959).

After completing these exercises, the teachers can be given subject matter on which to compose questions without any suggestions as had been presented in previous cases. Finally, the teacher is asked to select subject matter from his own course and write appropriate questions. In this last step, the pure form of application thinking is attained.

THE ACID TEST - COMPOSING QUESTIONS

Read this description of a lesson to be taught and write five to ten questions that could be used in instruction or evaluation.

The Lesson: The lesson is designed for a science unit on human behavior in about the fourth or fifth grade. A main idea is that humans who are emotionally hurt by someone sometimes take out their feelings on another person. Key words for instruction are behavior, emotion, anger, and projection.

Instructional materials: The students' textbook has a story in which the father of a family gets criticized by his boss. The father goes home and complains to his wife about her cooking. The wife scolds the children for making too much noise. The son gets angry with his dog and the daughter spanks her doll.

Exercise: Write five to ten good questions that would be useful in instructing the lesson. Think about the categories of questions that we have studied to get ideas for leading students to several kinds of thinking. Do not bother to classify the questions you write.

Think about these questions to help you write your own:

1. What are the main ideas you are attempting to teach? Are there important inductive generalizations? Are there important definitions or comparisons?
2. Would it be helpful to introduce other related subject matter, such as another story or an addition to the one in the book?
3. Are there implications that could be drawn from the story by the students?
4. Could main ideas in the lesson be communicated in other symbolic forms?

QUESTIONS FOR A FIRST GRADE SOCIAL STUDIES UNIT

(The object of this exercise is to demonstrate that a knowledge of the six relationships in interpretation helps teachers to form a variety of questions.)

Ideas to be Taught in a First Grade Unit

1. Many families in city apartments move to homes in suburbs where they have more room, space for a garden and other outdoor recreation, better opportunities for pets, clear air, less noise.
2. Moving men are trained for their work. They use special equipment and must be paid for their work. This is how they get money to support their families.
3. Moving requires division of labor and cooperation between family and movers.
4. Houses are laid out in a pattern with special uses for each room.
5. Families in a neighborhood can make newcomers feel welcomed.
6. Definitions to be taught are: apartment, city, town, house, home, pay, cost, earn, cooperation, welcome, friendly.
7. Skill is to be developed in distinguising a painted or sketched picture from a photograph.

Instructional Materials

The five pictures on the following pages are in a text that is available to all students. The teacher may use any other pictures or stories that are useful in the instruction of this lesson.

Problem

Think of each of the six kinds of relationships in interpretation question and write a question pertaining to this unit which would ask first grade students to discover or use the relationship. You may use other pictures, stories or examples in your questions. For example, a question might state that the teacher would first read a story about a family moving into an unfriendly neighborhood and then ask...etc.

Write questions here

1. Question suggested by comparative relationship.

→

2. Question suggested by relationship between a definition and an example of its use.

→

3. Question suggested by relationship of inductive generalization to supporting evidence.

→

4. Question suggested by the relationship of implication from evidence.

→

5. Question suggested by the relationship of a sill to an example of its use.

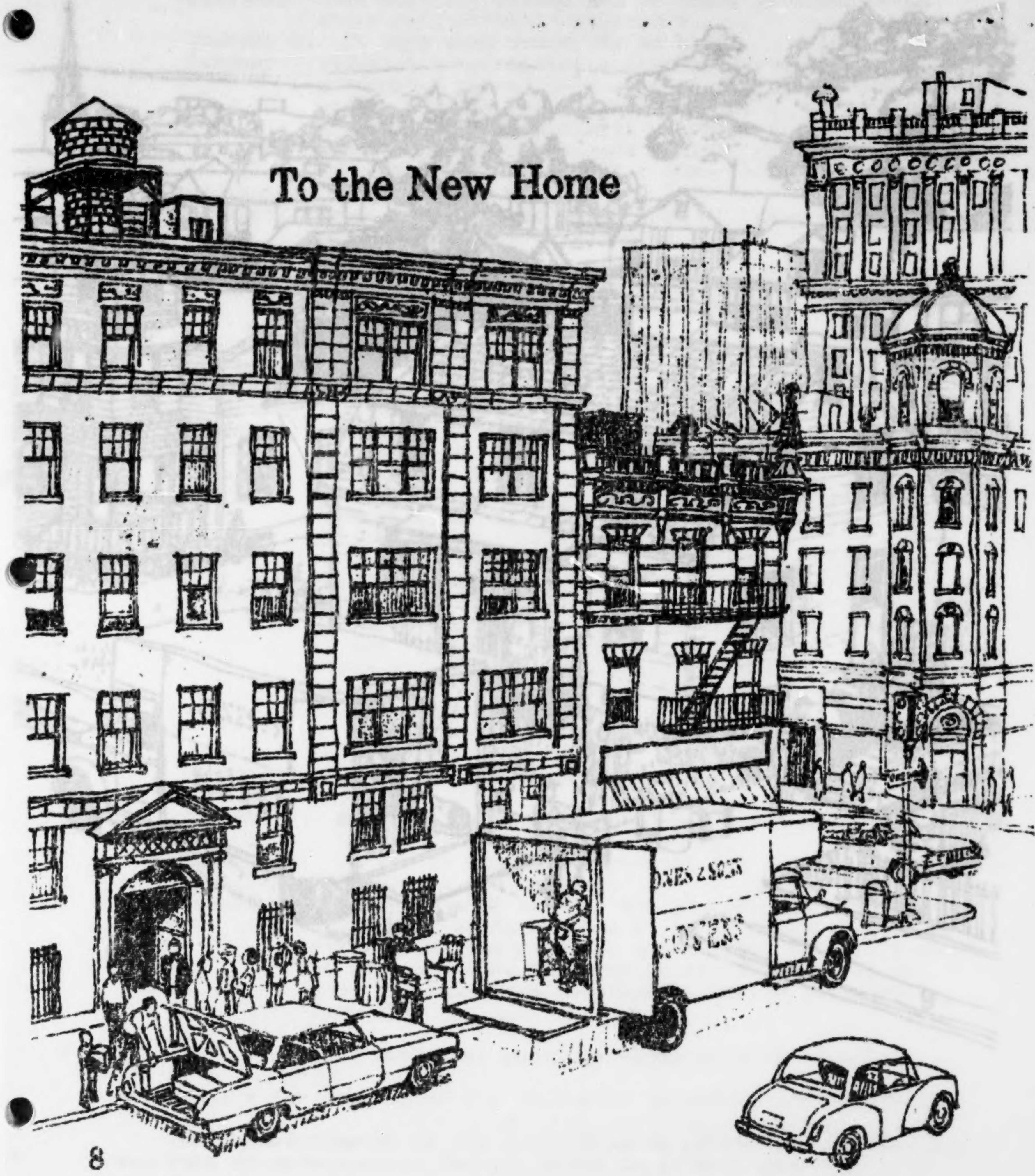
→

6. Question suggested by the relationship of cause and effect.

→

PRECEDING PAGES MISSING

To the New Home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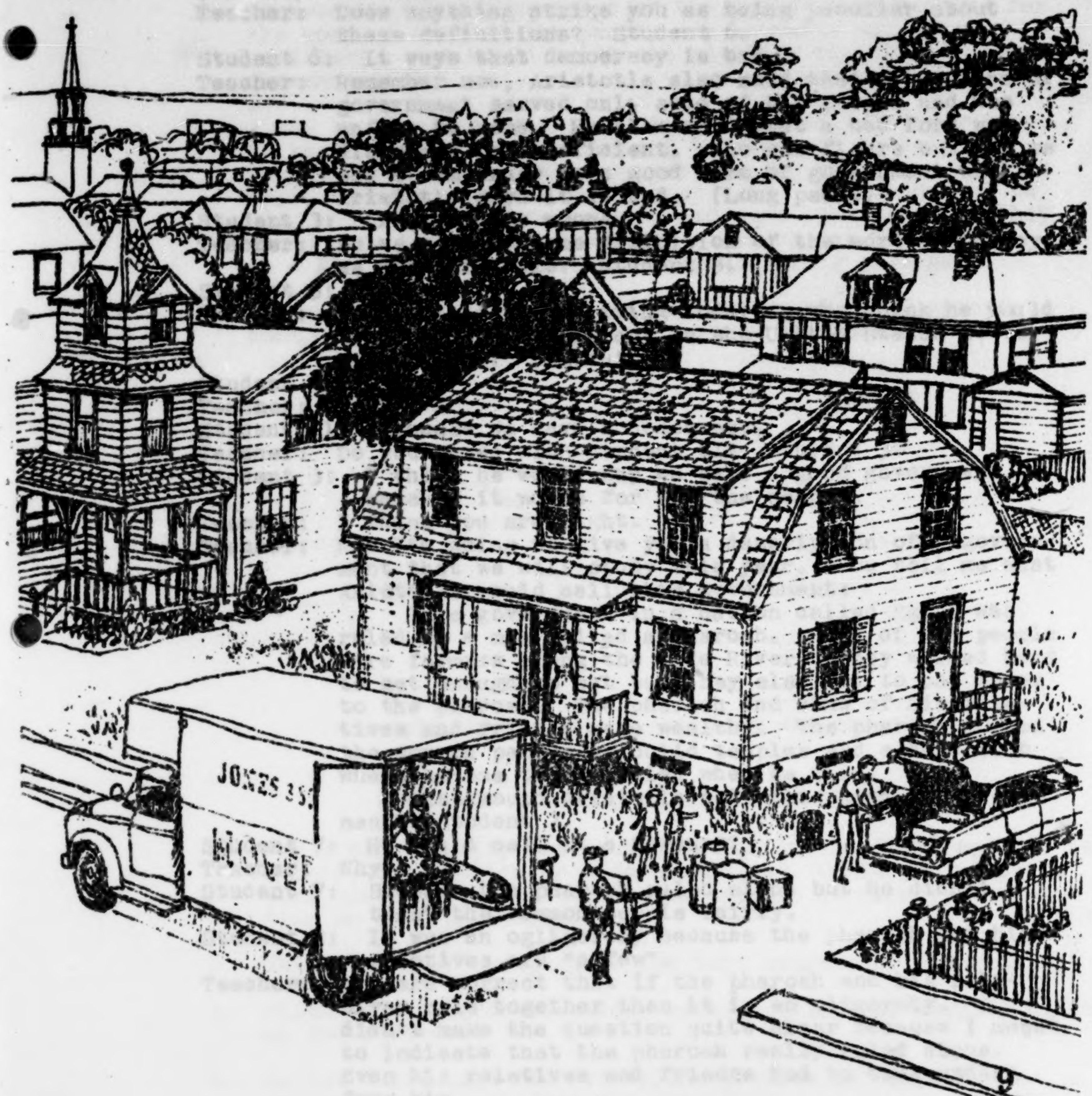

JONES & S
MOVE

PRECEDING PAGE MISSING

(An airplane sails across the room)

Teacher: Does anything strike you as being peculiar about these definitions? Student 6.

Student 6: It says that democracy is bad.

Teacher: Remember now, Aristotle also said that a bad form of government served only some of the people and was unfair to some. He also said that a bad form was dishonest or inefficient. Who can figure out why we say a democracy is a good form of government while Aristotle says it is bad. (Long pause)

Student 3: Aristotle is wrong.

Teacher: Do we use the same definition of the word democracy as did Aristotle? Student 3.

Student 3: No.

Teacher: If Aristotle were living today do you think he would consider our government in the United States to be good or bad? Student 21.

Student 21: Bad.

Teacher: Why?

Student 21: Because we have a democracy.

Teacher: Do you agree with Student 21? Student 3.

Student 3: I think he would say we have a good government because it works for all the people.

Teacher: I think you are right.

Teacher: Now I'm going to give you a description of a government that we will study this year. You tell me what Aristotle would call this government:

This government in a nation called Egypt was ruled by a man called a pharoah. Most of the people were farmers along the Nile River. They worked hard to get enough to eat but they also had to pay taxes to the pharoah. The pharoah and some of his relatives and friends were wealthy. The pharoah forced the common people to build temples and a huge tomb where he was to be buried when he died.

What would Aristotle call this kind of government? Student 7.

Student 7: He would call it a tyranny?

Teacher: Why?

Student 7: Because the pharoah ruled alone but he didn't treat the common people fairly.

Student 2: It was an ogligarchy because the pharoah and his relatives are "a few".

Teacher: You are correct that if the pharoah and his relatives rule together then it is an oligarchy. I didn't make the question quite clear because I meant to indicate that the pharoah really ruled alone. Even his relatives and friedns had to take orders from him.

(The questions continue along similar lines)

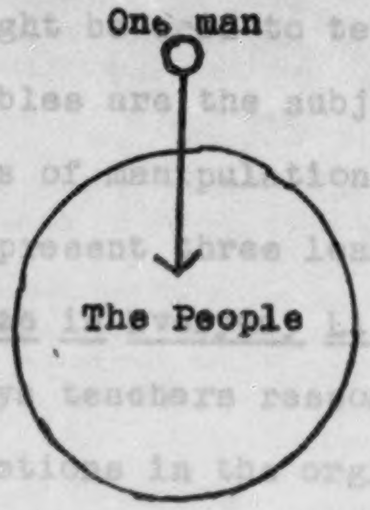
On a quiz a few days later the following questions are included:

On the blackboard is the chart showing Aristotles classifications of government. You may refer to it when answering the next several questions.

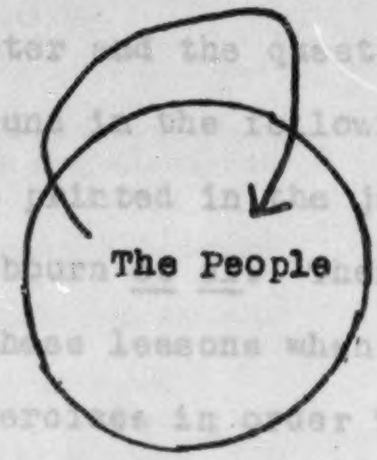
1. We know that the government of the United States works for the good of most of the people and is quite honest and efficient. How would Aristotle classify the United States government?

2. A man by the name of Ataturk took over the rule of Turkey. He kept the power of government but used it to help the people. There was much sickness and few schools. Ataturk improved education and built hospitals. He hoped that as the people became more healthy and more educated that they could earn more money for food, clothing and shelter.
   How would Aristotle classify Ataturk's government?

3. Below are diagrams of two of Aristotles kinds of government. Draw a diagram that represents the third.



Monarchy or Tyranny



Polity or Democracy

QUESTIONS FOR DISCUSSION AT OUR MEETING

1. Would you classify test question two in the first episode as memory, translation or interpretation? Would you classify test question one in the second episode as memory, translation or interpretation?

2. Which one test question is the best example of translation?

3. Which of the teachers places more intellectual responsibility on the students?

4. Do you think that the discipline problem in episode two seriously detracts from the learning?

5. What parts of the questioning strategy of either teacher could be improved?

6. Do you think the instruction in episode one or in episode two would best prepare students to apply Aristotle's ideas to the governments of nations studied during the year? Why?

PRACTICE IN MANIPULATING QUESTIONS

The exercises in manipulating questions are useful for teachers who are more advanced in their mastery of the taxonomy. These exercises are based on the idea that virtually any lesson can be taught on several cognitive levels. The teachers are given a lesson taken from a textbook, workbook, or a unit developed by a teacher. The lesson includes both the subject matter to be presented to the students and the questions based on the subject matter. The teachers then write a description of alternative strategies that might be used to teach the lesson on other cognitive levels. The variables are the subject matter and the questions to be asked.

Three examples of manipulation are found in the following pages. The first three pages present three lessons as printed in the junior-high science text Sciente in Everyday Life by Obourn et al. Then follows examples of the ways teachers respond to these lessons when asked to manipulate the questions in the orginal exercises in order to demonstrate other possible kinds of thinking.

On her way to and from school Alice had to pass the city dump. She often noticed the rusty tin cans and wondered what caused the iron in them to rust. Her father explained that rust forms when oxygen from the air combines chemically with iron.

The next day in the science laboratory Alice put some wet iron filings in a graduate, and then inverted the graduate over a container of tap water with the mouth of the graduate well below the surface of the water. At the end of the day she observed that the water had risen in the graduate, taking up about one-eighth of the space previously unfilled with water. When she discussed her observation with her science teacher, he said, "But the air is about one-fifth oxygen."

Alice reasoned therefore that about one-fifth of the air in the graduate should have combined with the iron. Then the water should have risen one-fifth of the height of the graduate to fill the space which the oxygen had occupied while it was in the air.

The next morning Alice set up an identical experiment. At the end of the day the water had risen about one-fifth the height of the graduate.

Alice decided that the two experiments were not carried out under exactly the same conditions.

Select from the statements below, possible explanations for Alice's inference.

1. The filings used in the second experiment may have been smaller than those in the first so that more surface was exposed.
2. The temperature of the room was lower on the second day.
3. The room temperature was higher on the second day.
4. On the first day the filings were not as well distributed as on the second day.
5. The atmospheric pressure was higher on the second day; this would cause more water to be pushed into the graduate.

On the third day Alice repeated her experiment. She controlled as many of the conditions as possible, knowing that to verify a hypothesis she must change only the one condition which seems to lead to the solution.

Write, as a question, what you assume to be the problem Alice had in mind in planning her first experiment.

Parallel experiments with no condition changed must be run in order to explain the cause of any difference in results. These parallel experiments are called controls. Many conditions, such as light, humidity, air pressure, and temperature, must be carefully controlled in exactly the same way in the main, the control, and the check-up experiment. Check-up experiments are repetitions of both the main and the control experiment to make sure that the same result can always be obtained.

Which of the following things would you expect Alice to have done on the third day?

1. She carefully recorded the barometric pressure.
2. She used iron filings from the same container.
3. She used distilled water only.
4. She permitted no one to touch any equipment, posting this sign, "You may observe but don't disturb."
5. The equipment was arranged after school and set in the sunshine.
6. The temperature was recorded when the experiment was concluded.
7. An empty graduate (no iron filings) was inverted over water in the same way as all others used.
8. Three inverted graduates were used.
9. The graduates were allowed to stand for two days after the controlled experiment was set up.

Write briefly what you believe to be (*a*) the experimental factor; (*b*) the control factor.

At the end of the first day, Alice reported her observations to her father. He suggested that she wash the iron filings with alcohol before placing them in the graduate. Briefly, tell whether you would have followed his suggestion and justify your decision.

PRACTICE IN PROBLEM SOLVING

A good problem-solver must make the best possible interpretations of the evidence that he secures that is related to a problem. If evidence is not clearly and accurately interpreted, wrong conclusions may follow. Learning to interpret evidence requires practice in many skills, including the following:

1. *Ability to distinguish between things that are causes and things that are effects of causes.*
2. *Ability to distinguish facts from ideas that are taken for granted as true. These latter ideas are called assumptions.*

John performed a science experiment at school. He placed some water in a can that had a screw top. He heated the water until steam came from the opening and then screwed the top on tightly. He removed the flame and then ran cold water over the can. The can was crumpled. John concluded from this experiment that air exerts a great pressure. Before he could accept this conclusion, he had to distinguish carefully between the facts and the assumptions in the experiment.

Some of the following statements are facts, others are assumptions. Copy the statements on a separate sheet of paper. Place an *F* before those items you regard as facts and an *A* before those you regard as assumptions.

1. The can was crumpled.
2. The steam inside the can condensed.
3. Air pressure crumpled the can.
4. The can was filled with steam.
5. Most of the air was removed from the can by the steam.
6. Water was placed in the can.
7. The water boiled.
8. The pressure inside the can was reduced.
9. Liquids occupy less space than gases.
10. When water boils it turns to steam.
11. The can did not leak.
12. A vacuum was produced inside of the can.
13. When steam is cooled it condenses.
14. Steam can exert a pressure the same as air.
15. Air was present around the can.
16. The pressure on the outside of the can was greater than the pressure on the inside.
17. Air pressure can be great enough to bend metal.

TYING UP SOME LOOSE ENDS ON CLASSROOM QUESTIONS

For our final inservice meeting this year we will analyse two learning episodes in terms of the ideas that we developed on questioning strategies this year. We will observe other factors that play a part in the success or failure of a lesson besides the form of the questions. Although these episodes take place on the kindergarten level, the factors are exactly the same as those to be considered in first, second, or third grade.

In order for us to make good use of our time please read the two episodes before the meeting.

LEARNING EPISODE I - Kindergarten

Unit V. Library

Objectives: (quoted from Kindergarten social studies guide)

1. To encourage a love for books.
2. To learn the proper care and use of books.
3. To help children realize that information comes from books.

Cast:

Teacher
Students 1-5, scholastically bright
Students 6-20, scholastically average
Students 21-25, scholastically slow

Dialogue:

Teacher: (Holding up a book) Who can tell me what I have in my hand?
Student 1: A book.
Student 2: A book.
Teacher: What color is the book? Student 3.
Student 1: Blue.
Student 3: Blue.
Teacher: Please, Student 1, let others answer the question when I call on them.
Teacher: We read this book. Do you know what it was about? Student 15.
Student 1: It was about Mike's house.
Student 15: It was about Mikes house.
Teacher: For heaven sakes Student 1, don't answer unless I call on you. I don't want to have to tell you again.
Teacher: (Holding up another book that is worn, torn and marked) What do you notice about this book? Student 7.
Student 7: It's green.
Teacher: Yes, What else do you notice? Student 4.
Student 4: It's torn.
Teacher: Do you see anything else that would make this book hard to look at.

Student 1: It has pencil marks on it.
Teacher: Yes, it does. Notice that you cannot see this picture very well. Is this book clean or dirty? Student 11.
Student 11: It is dirty.
Teacher: You are right. How do you suppose it got so dirty? Student 6.
Student 6: Somebody rubbed dirt on it.
Teacher: That might have happened -- or maybe somebody with dirty hands read it. Do you see anything else that would make this book hard to look at? (Turns to torn page.) Student 13.
Student 13: The page is partly gone.
Teacher: I wonder what was on the part of this picture that is missing.

Sometimes babies tear books but boys and girls who go to school know better than to tear a book on purpose. Sometimes boys and girls accidentally tear or damage a book. Can you think how this happen?

Student 1: I saw Student 23 tear a book. He must be a baby.
Teacher: Student 1, that wasn't a nice thing to say. You had better stay after school and think of some nice things to say about people.
Teacher: Can anyone think of how a book might be torn accidentally?
Student 1 whispers to Student 4: Teacher is a nice rat fink. (Laughter)
Teacher: All right Student 1! You had better sit on that chair over on the other side of room. (Student 1 saunters to chair)
Teacher: Can anyone think of a way in which a book might accidentally be torn? (No response)

Suppose Student 26 and Student 27 both want the same book. They both reach for it and start pulling back and forth. Might the book get torn? Student 17.

Student 17: It would get torn.
Teacher: Now I want you to look at our shelf full of nice books. We will want to keep them in good condition so everyone can enjoy them. We should have some rules about books so that we will remember to take good care of them. Can you think of some rules that we should follow? I will write them on this big piece of paper. Then you will draw some pictures to help us remember the rules. Who can think of a good rule? Maybe if you look at this worn book it will help you to think of a rule.

etc.etc.

x x x x x x

LEARNING EPISODE II

Same objectives, same cast, but different approach to questions

Teacher: (Holding up a book) Who can tell me what I have in my hand? Student 2.

Student 1: A book.
Student 2: A book.
Teacher: What color is the book? Student 3.
Student 1: Blue.
Student 3: Blue.
Teacher: Please Student 1, let others answer the question when I call on them.
Teacher: We read this book. Do you remember what it was about? Student 15.
Student 1: It was about Mike's house.
Student 15: It was about Mike's house.
Teacher: Student 1 is certainly having trouble today in letting other boys and girls have a chance to answer. Try to remember this time Student 1. Maybe if you put your hand over your mouth it would help. (Everyone in class except Student 1 puts their hands over their mouths).
Teacher: I know that you liked the story about Mike's house. On our shelf we have many books that have good stories. We must be sure to take care of these books so that we all will have a chance to read them. I have some pictures that show some rules for taking care of books. Here is a picture of a boy washing his hands. This is to remind you that we should have clean hands when we read our books. Can you think why we should not read books if our hands have jam on them? Student 27.
Student 27: The jam might get on the book.
Teacher: That's right. We don't like to read a book that has jam on the pictures.
Teacher: The next picture shows a baby writing on a book. His brother is running toward the baby to take the pencil. This is to remind you that only babies write on books and this spoils them. The rule is that we must not write on books.

Who has a baby brother or sister that writes on books? (Many hands raised)
Student 1: My brother ate a page out of my book.
Teacher: That certainly isn't the way to take care of a book.
Teacher: The next picture shows a book with a page partly torn out. A girl is waving to somebody but we don't know who because that part of the picture is missing. Who do you think she is waving to?
Chorus of Answers: Her mother, her father, her dog, her teacher.
Teacher: We will never know because the book is torn.
Student 1: I know because I saw that book in the library. She's waving to her father.
Teacher: Now let's see if we can remember the rules. I will show you each a picture and you tell me the rule for taking care of books. What rule does this picture remind you of? (Shows picture of baby writing in a book)
Student 5: Don't let babies have a pencil when they are looking at a book.
Teacher: No, that is not the rule. What is the rule Student 3?
Student 3: We must not write in books.
Teacher: That's right. (H olds up next picture). What rule do you think of when you see this picture?

etc. etc. etc.

QUESTIONS FOR CONSIDERATION AT OUR MEETING

1. At the very end of Episode II the teacher holds up each picture and asks the students to tell her the rule on caring for books that is represented in the picture. Would this question be asking the students to remember, translate or interpret?

2. After the rules have been formulated in Episode I the teacher asks the students to pick a rule and draw a picture that will help students remember the rule. Would this be asking the students to remember, translate or interpret? Could the thought process in drawing the picture be different for two students? Explain.

3. (For kindergarten teachers only) Do you think that the children could be expected to be successful in thinking of rules for taking care of books after having observed a damaged book? Do you think that the children could be expected to think of fules for taking care of books if they had not had the preliminary consideration of the damaged book?

4. The two teachers handled the problem posed by Student 1 in different ways. Could the manner of handling a problem such as this one have a bearing on the quality and variety of thinking by students? Explain.

5. What parts of the questioning strategy of either teacher might be improved?

6. Do you think that the strategy in Episode I or in Episode II would more likely lead students to take good care of books? Why? (You may prefer to argue that neither strategy is better than the other.)

These two episodes will be discussed in our intermediate grades meeting.

TYPING UP SOME LOOSE ENDS ON CLASSROOM QUESTIONS
(Intermediate Grades)

In our final inservice meeting this year we will analyse two learning episodes in terms of the ideas that we developed on questioning. We will observe other factors that play a part in the success or failure of a lesson besides the form of the questions.

In order for us to make good use of our time please read the two episodes before the meeting.

LEARNING EPISODE I (6th grade)

Setting: A sixth grade teacher has decided to have his students study some ideas on government that are not contained in the textbook.

Cast:

Teacher
Students 1-5 scholastically bright
Students 6-20 scholastically average
Students 21-25 scholastically slow

Dialogue:

Teacher: This year in social studies we will study some countries in Africa, Europe, and Asia. One of the things we will look at is government of these nations. What do we call our form of government in the United States, Student 5?

Student 5: Democracy.

Teacher: What is meant by democracy, Student 7?

Student 7: The men who run the government are elected.

Teacher: What else? Student 3.

Student 3: The people have free speech.

Teacher: Do all nations have democratic government? Student 7.

Student 7: No, some have communism.

Teacher: Today I'm going to tell you about the ideas on government of a man named Aristotle. He said all governments were of three types. I'll write them on the blackboard. (He writes) 1. Rule by one man. 2. Rule by a few men. 3. Rule by many men. Aristotle also said that each of these three kinds of government had good and bad forms. He had names for each form which I want you to write into your notebook. Copy this chart which I will write on the board.

	Good Form	Bad Form
Rule by one	monarchy	tyranny
Rule by a few	aristocracy	oligarchy
Rule by many	polity	democracy

Some of these words are hard to pronounce so I will say them and then you repeat the word orally. (A few minutes is spent on practicing pronunciation)

Teacher: Now, notice a surprising thing. Aristotle called democracy the bad form of rule by many. We think of democracy as the good form of rule by many. Aristotle would call our government a polity - not a democracy.

Teacher: Now I will give you five minutes to learn this chart. (Five minutes passes)

Teacher: Put away your notebooks while I erase the board. Student 9, what did Aristotle call the good form of rule by one?

Student 9: Tyranny.

Teacher: Student 10, is that correct?

Student 10: No, it whould be monarchy.

Teacher: What do we call a ruler of a country that has a monarchy today? (No response)

Teacher: Student 19, who wears a crown?

Student 19: A king

Teacher: That's right. Student 20, what would Aristotle call the kind of government that we have in the United States today?

Student 20: Policy.

Teacher: You mean polity. Student 15, what does Aristotle call the good form of rule by a few.

(The questioning continues along the same line)

On a quiz a few days later the following questions were included:

1. Fill in the chart:

	Good	Bad
Rule by one		
Rule by few		
Rule by many		

2. According to Aristotle what form of government do we have in the United States?

LEARNING EPISODE II (Different approach)

Teacher: Please quiet down. (Waits) We will not start until Student 24 gets in his seat.
Do you believe that democracy is a good or a bad form of government?

Answer from back of room: Bad!

Teacher: Let's be serious. What do you think, Student 4?

Student 4: Good.

Teacher: Today I'm going to tell you about a man who thought democracy was bad. Let me explain. This man's name was Aristotle and he lived over 2000 years ago. He decided it would be easier for people to talk about the governments of different countries if they all used the same definitions. First he decided to divide all governments into three kinds. I'll write them on the board.

1. Rule by one.
2. Rule by a few.
3. Rule by many.

(General hubbub when teacher turned to write on board)

Teacher: (Loudly) Which of the three kinds listed on the board do you think we have in the United States? Student 9.

Student 9: Rule by many.

Teacher: That's right. Please settle down class.
Aristotle had more to his definition. He said there was a good and a bad form of each of his three kinds. What might a government do which Aristotle would consider bad. (No response)

Teacher: Do you think a bad government would treat all people fairly or would it give special favors to a few and not to others? Student 6.

Student 6: It would give special favors to a few.

Teacher: What else might a bad government do? Student 11.

Student 11: The men might steal tax money and keep it.

Student 12: A rotten government might make the children go to school.

Teacher: You don't really mean that I know.

Chorus of unsolicited responses: "Oh yes", "You want to bet", etc.

Teacher: Aristotle had names for the good and bad forms of each of his three kinds of government. These names will come in handy as we study various governments in Africa, Europe, and Asia this year. I'll write a chart on the board that shows Aristotle's kinds of government. (Writes chart on board)

	Good Form	Bad Form
Rule by one	monarchy	tyranny
Rule by few	aristocracy	oligarchy
Rule by many	polity	democracy

Part of report card for grades 3-6

ACADEMIC ACHIEVEMENT

Subject Marks

A - Superior achievement for grade and subject
B - Above average achievement
C - Average achievement
D - Unsatisfactory -- needs improvement
F - Failure

Marking Key

NI - Needs Improvement
S - Satisfactory
HS - Highly Satisfactory

	Nov.	Jan.	Apr.	June
Arithmetic				
Knows number facts				
Solves problems accurately				
Understands arithmetical processes				
Effort				
Handwriting				
Forms letters correctly				
Applies writing skills to all work				
Effort				
Language				
Expresses oral and written ideas clearly				
Applies good language usage in speaking and writing				
Uses correct punctuation in written work				
Effort				
Reading				
Comprehends material read				
Reads well orally				
Shows skill in identifying new words				
Reads library books				
Effort				
Science & Health				
Shows interest and ability in solving science problems				
Shows ability to master science facts				
Observes and practices good health habits and safety rules				
Effort				
Social Studies				
Takes part in group planning and discussions				
Understands and applies geography and history facts				
Uses and interprets maps, globes, and charts				
Effort				

PRACTICE IN ANALYSIS OF COGNITIVE STRATEGY

This exercise includes classification of questions but goes farther in asking teachers to analyze instructional materials according to the whole rationale on questioning. The discussions of the units on the white pages in Section II are examples of the kinds of thinking teachers are called upon to perform in an analysis exercise. In addition to providing practice in using the rationale on questioning, this form of exercise leads teachers to a critical evaluation of their teaching materials and procedures.

Almost any form of instructional material or example of teaching procedure can be analyzed. This includes questions, problems and projects in textbooks, workbook exercises, laboratory experiments, tests of all kinds, and suggestions in teachers' manuals. Analyzing a lesson that they observe being taught is an excellent experience for teachers. A transcript of a lesson can also be used.

The instructions to the teacher for this form of analysis exercise can be made more or less explicit depending on the amount of experiences that participants have had with the rationale. One advanced group was given part of a teacher-made test, a test contained in a textbook, teaching suggestions for a unit from a teachers manual, and the unit on "Trading Communities" included in Section II of this report. The participants were asked to write several paragraphs describing the cognitive strategy for each set of materials. They were to tell whether the strategy was appropriate and offer reasons to support their conclusions. The teacher-made test is reproduced in part on the following page. An analysis of this would require pointing to the emphasis on memory questions and to the questions having faulty formats. The textbook test (not reproduced here) was interesting, because it came from a book in which student questions and activities at the ends of chapters were quite varied but in which the tests were one-hundred percent memory. This violated the idea that instruction and evaluation should be conducted on the same cognitive levels.

Unit 7
Science 3

Living on the Earth Planet

NAME________________________DATE__________________________

A. Fill in the blanks

volcano
warmer
world
flat
snow
axis
sand
ice
rain
moon
rock
gas

equator
planet
right
gravity
rotates
left
north pole
away from
cools
warms up
half
earth

melted rock
south pole
revolves
tilted
water
star
west
soil
east
sun

1. We do not fall off the earth because ______________ pulls us down.
2. We can't see very much of the earth at one time, so it looks _______.
3. The earth ______________ on its axis.
4. The earth is spinning from ______________ to ____________.
5. An imaginary line running through the center of the earth and around which the earth turns is the ____________.
6. When it is winter in the United States the north pole is tilted ____________ ____________ the sun.
7. The imaginary line that goes around the middle of the earth is the ______________.
8. The ______________ is closer to the earth than the ___________.
9. One ____________ of the earth is having day while the other ____________ is having night.
10. The earth ______________ around the sun.
11. The earth goes around the sun from ___________ to ___________.
12. We find the __________ ____________ on the top of the earth and the _________ _________ on the bottom of the earth.
13. The earth is not straight up and down, but it is ____________.
14. The sun can turn iron, stones, and soil to ____________.
15. The sun is a ____________ made of ____________.
16. The moon gets its light from the __________.

PRACTICE IN RELATING THE COGNITIVE DOMAIN TO THE AFFECTIVE DOMAIN

The taxonomy of questions is defined in terms of intellectual learning. This arbitrary division between intellectual and emotional learning is unrealistic but necessary in order to define a problem of manageable proportions.

Each of the following two exercises presents a running account of a classroom situation which includes both cognitive and affective elements. The teachers are asked to study the situations and draw conclusions concerning the strategies employed. An obvious point is that a lesson can be of high quality cognitively but ineffective if presented in an adverse psychological atmosphere.

(In order)

Section III

IMPROVEMENTS IN PRESENTING THE RATIONALE TO TEACHERS

The 1964 summer workshop on questioning and the subsequent units developed by participants were successful in planning ways to lead students to engage in a variety of thinking. However, this experience suggested a number of directions in which the rationale on questioning should be improved. One major direction for improvement was in the strategy in introducing the rationale to teachers. In the 1964 summer workshop the teachers were pushed too rapidly into composing questions for their own classes. As soon as the definition of a category was mastered on the translation and simple interpretation levels, the workshop participants were asked to compose questions of that category for a unit which they would instruct. Most teachers achieved a reasonable success in writing a few sample questions on their units. The teachers appeared to approach the school year with enthusiasm for better questioning; but, when the application actually began, many minor - but discouraging - problems arose that could have been avoided had the teachers had more experience on writing questions.

The next five exercises were developed to make it easier for teachers to master the categories of questions. In each exercise they practice using the ideas presented to them in the written statement of the rationale. The lessons move gradually from interpretation to application. The sequence of development is shown in the titles of the exercises.

1. "Practice in Recognizing Categories of Questions."
2. "Practice in Analysis of Cognitive strategy."
3. "Practice in Relating the Cognitive Domain to the Affective Domain."
4. "Practice in Manipulating Questions."
5. "Practice in Composing Questions."

PRACTICE IN RECOGNIZING CATEGORIES OF QUESTIONS

After teachers have read the rationale on questioning and answered the questions at the ends of the chapters, they need substantial practice in recognizing the categories of thinking before composing their own questions. In preparation for this type of exercise, it is imperative to remind teachers that the categories are not entirely discrete. The rainbow analogy used in Chapter One of the rationale is a good one. The teachers should be led to expect that there will not be perfect agreement on classification. They should be reminded too that the quality of a question does not hinge on the ease with which it can be classified. The taxonomy of questions has shortcomings as a classifying system, but this does not detract from its usefulness as a tool for suggesting many kinds of thinking that teachers might use in the classroom. The reason that classification exercises are used in spite of these problems is that they have proven a good way to reinforce the definitions and they encourage teachers to be constantly aware of the need to consider the forms of student thinking that are fostered in any classroom experience.

The simplest exercise in classification is one that presents a segment of subject matter followed by questions for students to answer. The teachers are to classify (not answer) each question. It is best to include the subject matter, because the category of thinking depends to a considerable extent on the amount of information presented to the students. The "Readings in the U.S. History: Eleventh Grade" presented in Section II are in a good format for this kind of classification.

A similar exercise describes a series of problem situations and asks teachers to classify the thinking. This is illustrated in Questions 1-4 on the next page. A variation presents a series of questions and ask teachers to identify several good examples of each category. This avoids the problem of troublesome questions that are on the boundary line between categories.

SELF EVALUATION ON THE TAXONOMY OF QUESTIONS

1. A young girl carefully follows a recipe in a cookbook to bake baking powder biscuits. What level of thinking is best represented?

2. In an election a citizen studies the issues and decides on the candidate whom he wishes to support. What level of thinking is best represented?

3. John learns to use ratios in math class in school. He and his brother take a vacation job that pays $100 at the end of the summer. John works twice as long as his brother and the boys decide to divide the money in proportion to the time worked. John uses his knowledge of ratios to compute the proper division of funds. What kind of thinking is best illustrated?

4. A woman living in a rural home plans to cook a meal for guests on her gas stove. She discovers that the pilot light has gone out and to her dismay she cannot find any matches in the house. After some rumination she heats the toaster and lights a piece of tissue paper with which she manages to light the pilot light. What level of thinking is best represented?

5. Over which of the three factors that determine the kind of thinking necessary to answer a question does the teacher have least control?

6. You have the reputation in your school of being an expert on the taxonomy of questions. A colleague shows you the following list of questions and asks you to classify them. Even though you know your categories of questions very well, why would you have difficulty with classifications?

   A. Does the Soviet Union or does the United States have greater total industrial production?
   B. Is the economic system of Sweden more like England or more like the United States?
   C. Why does Sweden have lower income taxes than the United States in spite of its large number of welfare services to the people?

7. Discuss the meaning and significance of the following statement: "Ascending the categories of the taxonomy leads to more involved thinking but not necessarily more difficult thinking."

8. One of the students in your class is having difficulty with his school work. His father hears that you are experimenting with higher levels of thinking and he charges you with failure to drill the students in basic facts. What points related to the taxonomy of questions might you call to his attention to justify your actions?

9. Discuss the meaning and significance of the following statement: "Every teacher instructs at certain cognitive levels whether or not he knows the taxonomy of questions."

10. Do the report cards reproduced on the next pages provide adequate opportunity for a taxonomy-minded teacher to inform parents of student progress? Defend your answer.

Part of kindergarten report card

	Second Semester		
	Consistently	Frequently	Seldom
READINESS FOR MORE FORMAL LEARNING			
Recognizes colors			
Recognizes his own manuscript name			
Understands number groups			
Distinguishes likenesses and differences (size, shape, sound, left and right)			
Takes part in readiness games			
Shows interest and curiosity in world about him			
Relates ideas in sequence			

TEACHER'S COMMENTS: ____________________

When growth and time have helped the child to become ready to learn, then and then only can parents and teachers help. "Readiness" cannot be taught, but we can help to stimulate interest once that readiness is present.

"Whenever children are ready to learn some skill or fact, then we all have to work hard. By every trick we know, we spur children to head in a direction they are now fully capable of taking."
From Before the Child Reads, James L. Hymes, Jr.

* * * * * * * *

Promoted to __________ Grade ______________________________ School

		First Semester			Second Semester		
		Consistently	Frequently	Seldom	Consistently	Frequently	Seldom
SELF EXPRESSION							
Music	Takes active part in singing						
	Sings in tune						
	Participates in rhythms						
	Has sense of rhythm						
Art	Shows skill in use of materials						
	Expresses self creatively						
	Uses a variety of materials						
Language	Speaks clearly						
	Contributes worthwhile ideas						
	Is enlarging his vocabulary						
	Shows interest in stories, poetry, and pictures						
PHYSICAL DEVELOPMENT	Relaxes during quiet periods						
	Cares for his personal needs						
	Practices desirable health habits						
	Practices traffic and safety rules						
	Is developing coordination						

PRECEDING PAGE MISSING

Now here is the system which exists and here is its result. The whole class of simple laborers are poor and in general unable to secure any thing beyond the bare necessities of life.

Chattel Slavery Superior to Wage Slavery

Labor may be obtained by two systems: Slave labor, or free labor. Of the two, the first is, except so far as the feelings are concerned, decidedly the least oppressive. If the slave has never been a free man, as a general rule, his sufferings are less than those of the free laborer at wages. As to actual freedom one has just about as much as the other. The laborer at wages has all the disadvantages of freedom and none of its blessings, while the slave, if denied the blessings, is freed from the disadvantages. We are not advocates of slavery, we are as heartily opposed to it as any modern abolitionist can be, but we say frankly that, if there must always be a laboring population distinct from proprietors and employers, we regard the slave system as preferable to the system of wages. It is no pleasant thing to go days without food, to idle for weeks, seeking work and finding none, to rise in the morning with a wife and children you love and know not where to procure them a breakfast, and to see constantly before you no brighter prospect than the poorhouse. Yet these are not unfrequent incidents in the lives of our laboring population. Even in seasons of general prosperity we have seen hundreds of people in a not very populous village, in a wealthy portion of our country, suffering for the want of the necessities of life, willing to work, and yet finding no work to do. Many times the poor man has applied for work, merely for his food, and many times he was rejected. These things are little thought of because the applicants are poor, they fill no conspicuous place in society. But their wrongs are recorded in heaven. It is said that there is no want in this country. There may be less than in some other countries. But death by actual starvation in this country is no uncommon occurrence. The sufferings of a quiet, modest but useful class of females in our cities, in general, seamstresses, too proud to beg or to apply to the poorhouse, are not easily told. They are industrious, they do all that they can find to do, but yet there is little for them to do, and the miserable pay they receive for it is hardly enough to keep soul and body together. And yet there is a man who employes them to make shirts, trousers, etc., and grows rich on their labors. He is one of our respectable citizens, perhaps is praised in the newspapers for his large donations to some charitable institution. He passes among us as a pattern of morality and is honored as a worthy Christian and why shouldn't he be, since our Christian community is made up of such as he, and since our clergy would not dare question his piety lest they should risk the rebuke of society and lose their standing and their salaries? No, since our clergy are raised up, educated, fashioned, and sustained by such as he. Many of our churches are supported by wealthy, dishonest men. The basement is a trader's shop.

We pass through our manufacturing villages; most of them appear neat and flourishing. The workers are well dressed and we are told well paid. They are said to be healthy, content and happy. This is the fair side of the picture, the side exhibited to distinguished visitors. There is a dark side, moral as well as physical. Of the common workers, few, if any, by their wages acquire proficiency. A few of what we term "body-servants" are well paid and now and then an agent or an oversee rides in his coach. But the great mass wear out their health, spirits and morals without becoming one bit better off than when they commenced their labor.

The average working life of the girls that come to Lowell[2] from Maine, New Hampshire and Vermont is only three years. What becomes of them then? Few of them ever marry, fewer still ever return to their native places with reputations unimpaired. "She has worked in a factory," is almost enough to condemn the most worthy and virtuous girl. We know no sadder sight on earth than one that our factory villages present when the bell at "break of day," or at the hour of dinner, calls out its hundreds or thousands of workers. We stand and look at these hard-working men and women hurrying in all directions and ask ourselves where do the proceeds of their labor go. The man who employs them and for whom they are toiling as slaves, is one of our cities' millionaires. He may be a member of our legislature, enacting laws to put money into his own pocket, or he is a member of our legislature, enacting laws to put money into his own pocket, or he is a member of Congress, demanding a high tariff to tax the poor for the benefit of the rich, or in these times he is shedding crocodile tears over the sad state of the poor laborer. He shouts for liberty, crusades for equality and is horrified at a southern planter who keeps slaves.

One thing is certain; that of the amount actually produced by the laborer, he retains a less proportion than it costs the master to feed, clothe and lodge his slave. Wages is a cunning device of the devil for the benefit of tender consciences who would retain all the advantages of the slave system without the expense, trouble, and scorn of society.

The slave system, in name and form, is gradually disappearing from Christendon. It will not endure much longer. But its place is taken by the system of labor at wages and this system is no improvement upon the one it replaces. Nevertheless the system of wages will triumph. It is the system which in name sounds more honest than slavery and in reality is more profitable to the master. It yields the wages of wrong doing without its disgrace. It will, therefore, transplant slavery and be sustained for a time.

Now what is the prospect of those who fall under the oppression of this system? Is there a reasonable chance that any considerable portion of the present generation of laborors shall ever become owners? Will they ever succeed in obtaining a sufficient portion of the funds of production in order to sustain themselves by their own capital? We do not need to ask the question. It is doubtful that they will; and it seems useless for them to aim for such a goal with conditions the way they are. It does not appear that this condition can ever be made one in which man can be satisfied, in which he can be content to live and die. In our country this condition has existed under its most favorable aspects and has been as good as it can be. It has reached all the excellence of which it is able. Now, it is not improving but it is growing worse.

The actual condition of the workingman today, viewed in all respects is not as good as it was fifty years ago. If we have not been altogether misinformed, fifty years ago, health and industrious habits constituted an important part in the betterment of one's self and with them almost any man might aspire to competence and independence. But it is no longer true. The wilderness has receded and already the new lands are beyond the reach of the mere laborer and the employer has him at his mercy. If the present relation continues, we see nothing better for him in reserve than what he now possesses, but something altogether worse.

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[2] Lowell, Mass. was one of the early mill towns, development of which signalized the end of Jefferson's ideal agricultural picture of the United States.

Questions

1. The author states "under every government in the world, the largest salaries are allotted to those men whose offices demand the least amount of actual labor, either mental or manual". True or false, if you apply this to the 1960's? Why?
2. What are the author's feelings about slave labor and free labor? Which does he think is superior? Why?
3. What are the author's feelings about the clergy? Woman factory worker? Millionaire?
4. What does the author believe is "the coming crisis of capitalism?"
5. What other comparisons can you make between slave labor and free labor? List.
6. Rewrite this phase in your own words: "since our clergy would not dare question his (millionaire's) piety lest they should risk the rebuke of society and lose their standing and their salaries."
7. What does this sentence mean: "The basement is a trader's shop?"

Orestes Augustus Brownson
Restrict Inheritance of Property (1840)

Following the destruction of the banks, must come that of all monopolies, of all privilege. There are many of these. We cannot list them all; we therefore select only one, the greatest of them all, the privilege which some have of being born rich while others are born poor. It will be seen at once that we believe in the hereditary descent of property, an idea contrary to our American system, which must be removed. We cannot now go into a discussion of this subject, but we promise to resume it at our earliest opportunity. We only say now that as we have abolished hereditary monarchy and hereditary nobility we must complete the work by abolishing hereditary property. A man shall have all he honestly acquires, so long as he himself belongs to the world in which he acquires it. But his power over his property must cease with his life and his property must them become the property of the State, to be disposed of by some just law for use of the generation which takes his place. Here is the principle without any of its details, and this is the grand legal measure to which we look forward. We see no means of elevating the future laboring classes without this. And will this measure be easily carried out? Not all all. It will cost infinitely more than it cost to abolish either hereditary monarchy or hereditary nobility. It is a great measure. The rich, the business community will never voluntarily consent to it, and we think we know too much of human nature to believe that it will ever be effected peaceably. It will be brought about only by the strong arm of physical force. It will come if it ever comes at all, at the conclusion of war, the like of which the world as yet has never witnessed, and from which, however inevitable, it may seem to the philosopher the heart of Humanity recoils with horror.

We are not ready for this measure yet. There is much previous work to be done, and we should be the last to bring it before legislature. The time, however, has come for its free and full discussion. It must be thought about by the public and society must be prepared for acting on it. No doubt they who propose it, and especially they who support it, will experience abuse. They will be regarded by the part of the community they oppose or may be thought to oppose, as "graceless varlets" against whom every man of substance should set his face. But this is not, after all, a thing to disturb a wise man nor to stop a true man from speaking his mind. He who is worthy of the name "man" speaks what he honestly believes the interests of his people demand, and seldom worries himself about what may be the consequences to himself. Men have, for what they believed the cause of God or man, endured the dungeon, the cross, death and they can do it again, if need be. This subject must be freely, boldly and fully discussed, whatever may be the fate of those who discuss it.

Questions:

1. What reasons does Brownson give for doing away with the inheritance system?

2. Where does he propose a man's wealth go at death? Has his prediction come true anywhere in the world in the 1960's? Where?

3. Who, does the author believe, will never consent to this proposal? How, does he believe, the doing away of inheritance will come about?

Orestes Augustus Brownson

The Need for a Revival of True Christian Ideals

The next step in this work of elevating the working classes will be to revive the Christianity of Christ. The Christianity of the Church has done its work. We have had enough of that Christianity. It is powerless for good, but by no means powerless for evil. It now hinders the growth of God's kingdom. The moral energy which is awakened it misdirects, and makes its deluded discipled believe that they have done their duty to God when they have joined the Church, offered a prayer, sung a Psalm, and contributed of their means to send out a missionary to preach unintelligible ideals enough already, and more than enough. All this must be abandoned, and Christianity, as it came from Christ, be taken up and preached, and preached in simplicity and power.

According to the Christianity of Christ, no man can enter the kingdom of God who does not labor with all zeal and diligence to establish the kingdom of God on the earth--who does not labor to bring down the rich and bring up the poor; to break the chains of the bound and set the captive free; to destroy all oppression, establish the reign of justice, which is the reign of equality, between man and man; to introduce new heavens and a new earth, wherein dwelleth righteousness, wherein all shall be as brothers, loving one another, and no one possessing what another lacketh. No man can be a Christian who does not labor to reform society, to mold it according to the will of God and the nature of man, so that free scope shall be given to every man to unfold himself in all beauty and power, and to grow up into the stature of a perfect man in Christ Jesus. No man can be a Christian who does not refrain from all practices by which the rich grow richer and the poor poorer, and who does not do all in his power to elevate the laboring classes, so that one man shall not be doomed to toil while another enjoys his benefits; so that each man shall be free and independent, sitting under "his own vine and fig tree with none to molest or to make afraid." We grant the power of Christianity in working out the reform we demand; we agree that one of the most efficient means of elevating the workingmen is to Christianize the community. But you must Christianize it. It is the gospel of Jesus you must preach, and not the gospel of the priests. Preach the gospel of Jesus, and that will turn every man's attention to the crying evil we have designated, and will arm every Christian with power to effect those changes in social arrangements which shall secure to all men the equality of position and condition which it is already acknowledged they possess in relation to their rights. But let it be the genuine gospel that you preach, and not that pseudo-gospel which lulls the conscience asleep and permits men to feel that they may be servants of God while they are slaves to the world, the flesh, and the devil, and while they ride roughshod over the hearts of their prostrate brethren. We must preach no gospel that permits men to feel that they are honorable men and good Christians, although rich and with eyes standing out with fatness, while the great mass of their brethren are suffering from unjust laws, from miserable social arrangements, and pining away for the want of the refinements and even necessities of life.............

We cannot proceed a single step with the least safety, in the great work of elevating the laboring classes, without the exaltation of sentiment, the generous sympathy and the moral courage which Christianity alone is fitted to produce or quicken is perverted, and made efficient only in producing evil or hindering the growth of good. Here is wherefore it is necessary on the one hand to condemn in the most pointed terms the Christianity of the Church, and to bring out on the other hand in all its clearness, brilliancy, and glory the Christianity of Christ.

Questions:

1. What does Brownson believe to be the most pressing problem of his time? (short answer)

2. What class of men does Brownson tend to favor in his article? (short answer)

3. Whose duty does Brownson feel it is to help the working man? (short answer)

4. How did reformers in Brownson's time answer the problem Brownson proposed? (short answer)

5. Who, according to Brownson, can enter the Kingdom of God?

6. Brownson felt the church had done a good job in ridding America of its evils. (true or false) What appears to be Brownson's attitude towards "priests"?

7. According to Brownson, what was the relationship of the church to the rich? (short answer)

8. The evils of America, according to Brownson, were due to the individual. (true or false)

9. Does Brownson propose a solution as to how to rid the land of evils? What is it? (short answer)

10. What must a man do, according to the author, before he can be a Christian?

11. What is wrong with Brownson's thinking? What is right with it? Criticize his writing. Think of as many ways as you can.

12. Which modern political party might Brownson fit? Why?

5. What role does "Teddy" feel the press should play in eliminating special interests in politics?

6. .... the legislative branch? Executive Branch?

7. What role does Teddy believe the government should play, for example, in railroad interests?

8. What does Teddy mean by the statement: "I have no doubt that the ordinary man who has control of (the necessaries of life) is much like ourselves. I have no doubt he would like to do well, but I want to have enough supervision to help him realize that desire to do well."

9. Does Teddy feel that it is possible to prevent combinations? Why?

10. What agencies does Roosevelt feel should lead the way in controllin combinations?

11. Whom is Roosevelt trying to protect from "special interests" combinations? Why?

12. Judging from this speech alone, would the majority of the left wing element follow Roosevelt? Why?

13. What does Roosevelt believe caused monopolies to develop? Do you agree with him? What might possibly be a more basic reason?

14. What does Roosevelt mean by the square deal?

15. What does Roosevelt propose as a means of freeing the government from the control of special interests?

Bibliographical Note

The following articles were written by Orestes Augustus Brownson. Born in 1803. Died in 1876. Brownson became an ordained minister and was considered a liberal editor. He changed religions several times--from Universalist to Presbyterian to Unitarian to Catholic. He wrote several religious books and one on The American Republic: Its Constitution, Tendencies and Destiny (1865)

Directions:

Read the articles and answer the questions to the best of your ability.

Orestes Augustus Brownson
The Establishment of Social Democracy

I Now the great work for this age and for the coming is to raise up the laborer, and to realize in our own social arrangements and in the actual condition of all men that equality between man and man which God has established between the rights of one and those of another. In other words, our business is to free the poor as the past has emancipated the slaves. This is our work. There must be no class of our fellow men doomed to toil through life as mere workmen at wages. If wages are tolerated it must be, in the case of the individual worker, only under such conditions that, by the time he is of a proper age to settle in life, he shall have accumulated enough to be an independent laborer on his own capital, on his own farm or in his own shop. Here is our work. How is it to be done?

II Reformers in general answer this question, or what they feel its equivalent, in a manner which we cannot but regard as very unsatisfactory. They would have all men wise, good, and happy; but in order to make them so, they tell us that we want not external changes, but internal. And therefore, instead of speaking against society and seeking to disturb existing social conditions, we should confine ourselves to the individual's reason and conscience, seek merely to lead the individual to repentance and to reformation of life, make the individual a practical, a truly religious man; and all evils will disappear......

III For our part, we yield to none in our reverence for science and religion; but we confess that we do not look for the betterment of the people from priests.... They have had a fair trial. They cannot construct the temple of God. They cannot conceive its plan, and they know not how to build. They daub with poor mortar, and the walls they erect tumble down if so much as a fox attempts to go up thereon. In a word they always unite with the people's masters, and seek to reform without disturbing the social arrangements which render reform necessary. They would change the effect without changing the cause, secure to men the rewards of holiness, while they continue their allegiance to the devil. We have no faith in priests and narrow-minded speakers. They merely cry peace, peace and that too when there is no peace, and can be none.

The truth in the evil we have pointed out is not merely individual in its character. It is not, in the case of any single individual, of any one man's doing, nor can the efforts of any one man, directed solely to his own moral and religious perfection, do anything to remove it. But the evil we speak of is inherent in all our social arrangements, and cannot be cured without a radical change of those arrangements. Could we convert all men to Christianity in both theory and practice, as held by the most enlightened sect of Christians among us, the evils of the social state would remain untouched. Continue our present system, and all its present evil consequences will follow, whether it be carried on by your best men or your worst. Put your best men, your wisest, most moral, and most religious men, at the head of your paper money banks, and the evils of the present banking system will remain scarcely diminished. The only way to get rid of its evils is to IV change the system, not its managers. The evils of slavery do not result from the personal characters of slave masters. They are inseparable from the system, let who will, be masters. Make all your rich men good Christians, and you have lessened not the evils of existing inequality in wealth. The mischievous effects of this inequality do not result from the personal characters of either rich or poor, but from itself, and they will continue just so long as there are rich men and poor men in the same community. You must abolish the system or accept its consequences. No man can serve both God and the Devil. If you will serve the devil, you must look to the devil for your wages; we know no other way.

Questions:

I. What is Brownson's attitude toward wages? What does Brownson feel is "our work?" Could this apply to the 1960's? Why?

II. What does Brownson mean by "external" and "internal" changes? Rewrite the paragraph in your own words beginning with "They would have ....."

III. What arrangement does Brownson infer priests and the "master" class have? "They would change the effect without changing the cause ...." means what, in your own words?

IV. What is the evil Brownson is writing about? Can Christianity solve the evil? Why? What if all men were converted to Christianity, would the evil in society disappear? Rewrite paragraph IV, beginning with "Put your best men...." Is Brownson's logic correct or faulty? Where?

Orestes Augustus Brownson

The Coming Crisis of Capitalism (1840)

No one can observe the signs of the times closely without feeling that a crisis concerning wealth and labor is near. It is useless to shut our eyes to the fact, and it is equally as useless to fancy ourselves as an Ostrich, secure, because we have concealed our heads, so that we cannot see the danger. We or our children will have to meet this crisis. The old war between the King and the Barons is long since ended, and so is that between the Barons and the merchants and manufacturers. The businessman has become an equal of a Lord. And now begins the new struggle between the employee and his employer, between wealth and labor. Every day this struggle extends further and grows stronger and fiecer; what or when the end will be God only knows.

In this coming contest there is a deeper question at issue than is commonly imagined, a question which is but barely touched in controversies about banks, free trade, and corporations, although these controversies may be paving the way for it. We have discovered no trace of it in any king's or queen's speech, not in any President's message. The question is not touched upon in any popular political creed of the day, whether christened Whig or Tory. No popular Senator or deputy or peer seems to have any glimpse of it, but it is working in the hearts of millions, struggling to shape itself. One day it will be uttered and in thunder tones. The man who can answer the question on that day will be highly respected.

The question to be answered is simple. We merely want to know what is the actual condition of the laboring class thoughout the Christian world today.

This question and its answer is so important to all of us because the laborers make up a considerably large portion of our population. We exclude the nobility, we exclude also the middle class and include only the actual workers, and not proprietors, owners of production, houses, shops, lands, implements of labor, but we count only those individuals who are solely dependent on their own hands.

We have no means of determining their precise proportion of the human race, but we think that their number can be estimated at one half of the total population. In any contest, they will be two to one, because the large class of proprietors, who are not employers but laborers on their own land or in their own shops will favor them. We will not deny the fact that the laborers do not perform all that is necessary to the production of wealth. We are not ignorant of the fact that the merchant, who is the common conveyor and exchange dealer for goods produced by the worker, performs a useful service and is therefore entitled to a portion of the proceeds of labor. But make all necessary deductions on his account, and then ask what portion of the remainder is retained in the hands of the original producer, the workingman? All over the world this fact stares us in the face, the workingman is poor and depressed, while a large portion of the nonworkingmen, in the sense we now use the term, are wealthy. It may be laid down as a general rule that men are rewarded in an inverse ratio to the amount of service they perform. Under every government in the world, the largest salaries are alloted to those men whose offices demand the least amount of actual labor, either mental or manual. And this is in perfect harmony with the entire system of labor thoughout the world.

sacrifice our homes, lives, and children on the altar of materialism; to destroy the mass in order to secure corruption funds from the millionaires.

4 Assembled on the anniversary of the birthday of the nation, and filled with the spirit of the grand general and chief who established our independence, we seek to restore the government of the Republic to the hands of the "plain people" with which class it originated. We declare our purposes to be identical with the purposes of the national Constitution; to form a more perfect union and establish justice, insure domestic tranquility, provide for the common defense, promote the general welfare, and secure the blessings of liberty for ourselves and our posterity.

We declare that this Republic can only endure as a free government, while built upon the love of the people for each other and for the nation; that it cannot be pinned together by bayonets; that the Civil War is over, and that every passion and resentment which grew out of it must die with it, and that we must be in fact, as we are in name, one united brotherhood of free men.

5 Our country finds itself confronted by conditions for which there is no precedent in the history of the world; our annual agricultural productions amount to billions of dollars in value, which must, within a few weeks or months, be exchanged for billions of dollars worth of commodities consumed in their production; the existing currency supply is wholly inadequate to make this exchange; the results are falling prices, the formation of organizations for commercial or political advantage, the impoverishment of the producing class. We pledge ourselves that if given power we will labor to correct these evils by wise and reasonable legislation, in accordance with the terms of our platform.

6 We believe that the power of government--in other words, of the people--should be expanded (as in the case of the postal service) as rapidly and as far as the good sense of intelligent people and the teachings of experience shall justify, to end that oppression, injustice, and poverty shall eventually cease in the land.

7 While our sympathies as a party of reform are naturally upon the side of every proposition which will tend to make men intelligent, just and moderate, we, nevertheless, regard these questions, important as they are, as secondary to the great issues now pressing for solution, and upon which not only our individual prosperity but the very existence of free institutions depend; and we ask all men to first help us to determine whether we are to have a republic to administer, before we differ as to the conditions upon which it is to be administered, believing that the forces of reform this day organized will never cease to move forward until every wrong is righted and equal rights and equal privileges securely established for all the men and women of this country.

We declare, therefore:

First: That the union of the labor forces of the United States this day achieved shall be permanent and unending....

Second: Wealth belongs to him who creates it, and every dollar taken from industry without an equivalent is robbery. "If any will not work, neither shall he eat." The interest of rural and civic labor ara the same; their enemies are identical.

Third: We believe that the time has come when the railroad corporations will either own the people or the people must own the railroads, and should the government enter upon the work of owning and managing all railroads, we should favor an amendment to the constitution by which all persons engaged in government service shall be placed under a civil service regulation of the most rigid character, so as to prevent the increase of the power of the nationa administration by the use of such additional government employees.

Finance: We demand a national currency, safe, sound, and flexible, issued by the general government only, a full legal tender for all debts, public and private, and that without the use of banking corporations and a just, reasonable, and efficient means of distribution direct to the people....

1. We demand free and unlimited coinage of silver and gold at the present legal ratio of sixteen to one.
2. We demand that the amount of circulating money be speedily increased to not less than fifty dollars per capita.
3. We demand a gradually increasing income tax.
4. We believe that the money of the country should be kept as much as possible in the hands of the people, and hence we demand that all State and National revenues be limited to the necessary expenses of the government, economically and honestly administered.
5. We demand that the postal savings banks be established by the government for the safe deposit of the earnings of the people and to assist exchange.

Transportation: Transportation being a means of exchange and a public necessity, the government should own and operate the railroads in the interest of the people. The telephone and telegraph, the postoffice system, being a necessity for the transmission of newss, should be owned and operated by the government in the interes of the people.

Land: The land, including all the natural sources of wealth, is the heritage of the people, and should not be monopolized for speculative purposes, and alien owership of land should be prohibite All land now held by railroads and other corporations in excess of their actual needs, and all lands now owned by aliens should be reclaimed by the government and held for actual settlers only.

Your committee on Platform and Resolutions beg leave unanimously to report the following:

Whereas: Other questions have been presented for our consideration, we hereby submit the following, not as a part of the platform of the People's Party, but as resolutions expressive of the sentiment of this convention:

1. Resolved, That we demand a free ballot and a fair count in all elections, and pledge ourselves to secure it for every legal voter without Federal intervention, through the adoption by the States of the Australian, or secret ballot, system.

2. Resolved, That the revenue derived from a graduated income tax should be applied to the reduction of the burden of taxation now levied upon the domestic industries of this country.

3. Resolved, That we pledge our support to fair and liberal pensions to ex-union soldiers and sailors.

4. Resolved, That we condemn the false belief of protecting American labor under the present system, which opens our ports to the pauper and criminal classes of the world and crowds out our wage earners; and we denounce the present ineffective laws against contract labor, and demand the further restriction of undesirable immigration.

5. Resolved, That we cordially sympathize with the efforts or organized working men to shorten the hours of labor, and demand a rigid enforcement of the existing eight-hour law on government work, and ask that a penalty clause be added to the said law.

6. Resolved, That we regard the maintenance of a large standing army of hired soldiers--known as the Pinkerton system--as a menace to our liberties, and we demand its abolition; and we condemn the recent invasion of the territory of Wyoming by hired assassins of the rich, assisted by federal officers.

7. Resolved, That we commend to the favorable consideration of the people and the reform press the legislative system known as the initiative and referendum.

8. Resolved, That we favor a constitutional provision limiting the office of President and Vice-President to one term, and providing for the election of Senators of the United States by a direct vote of the people.

9. Resolved, That we oppose any national aid to any private corporation for any purpose.

10. Resolved, That this convention sympathizes with the Knights of Labor and their righteous contest with the tyrannical combine of clothing manufacturers of Rochester, and declare it to be the duty of all who hate tyranny and oppression to refuse to purchase the goods made by said manufacturers, or to patronize any merchants who sell such goods.

Questions on the Populist Platform

1. In the first paragraph, there are numerous references made to so-called "injustices." In your text book find as many specific examples of these as you can and list them.

2. What tariff are the Capitalists referring to in paragraph 3?

3. What relationship do the Populists believe the millionaires and the politicians have?

4. What is the goal of the Populists?

5. Who do the Populists blame "falling farm prices" on?

6. True or false. The Populists wanted to limit the power of government.

7. What are the "great issues" the Populists believe are pressing for solution? List.

8. Which of their "radical" proposals have been accepted in time? Which ones have not?

Theodore Roosevelt
The New Nationalism

I stand for the square deal. But when I say that I am for the square deal, I mean not merely that I stand for fair play under the present rules of the game, but that I stand for having those rules changed so as to work for a more substantial equality of opportunity and of reward for equally good service. One word of warning, which, I think, is hardly necessary in Kansas. When I say I want a square deal for the poor man, I do not mean that I want a square deal for the man who remains poor because he has not the energy to work for himself. If a man who has had a chance will not make good, then he has got to quit. And you men of the Grand Army, you want justice for the brave man who fought, and punishment for the coward who shirked his work. Is not that so?

Now, this means that our government, national and state, must be freed from the bad influence or control of special interests. Exactly as the special interests of cotton and slavery threatened our political integrity before the Civil War, so now the great special business interests too often control and corrupt the men and methods of government for their own profit. We must drive the special interests out of politics. That is one of our tasks to-day. Every special interest is entitled to justice--full, fair, and complete--and, now, mind you if there were any attempt by mob violence to plunder and work harm to the special interest, whatever it may be, that I most dislike, and the wealthy man, whomsoever he may be, for whom I have the greatest contempt, I would fight for him, and you would if you were worth your salt. He should have justice. For every special interest is entitled to justice, but no one is entitled to a vote in Congress, to a voice on the bench, or to representation in any public office. The Constitution guarantees protection to property, and we must make that promise good. But it does not give the right of voting to any corporation.

The true friend of property, the true conservative, is he who insists that property shall be the servant and not the master of the people; who insists that the creature of man's making shall be the servant and not the master of the man who made it. The citizens of the United States must effectively control the might commercial forces which they have themselves called into being.

There can be no effective control of corporations while their political activity remains. To put an end to it will be neither a short nor an easy task, but it can be done.

We must have complete and effective publicity of doings of corporations, so that the people may know beyond a shadow of doubt whether the corporations obey the law and whether their management entitled them to the confidence of the public. It is necessary that laws should be passed to prohibit the use of corporate funds directly or indirectly for political purposes; it is still more necessary that such laws should be thoroughly enforced. Corporate spending for political purposes, and especially such expenditures by public service corporations, have supplied one of the principal sources of corruption in our political affairs.

It has become entirely clear that we must have government supervision of capitalization,[1] not only of public service corporations, including particularly, railways, but of all corporations doing an interstate business. I do not wish to see the nation forced into the ownership of the railways if it can possibly be avoided, and the only alternative is thorough and effective regulation, which shall be based on a full knowledge of all the facts, including a physical valuation of property. This physical valuation is not needed, or, at least, is very rarely needed, for fixing rates; but it is needed as th basis of honest capitalization.[2]

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[1] to estimate the value of a stock or an enterprise.

We have come to recognize that franchises[3] should never be granted except for a limited time, and never without proper provision for compensation to the public. It is my personal belief that the same kind and degree of control and supervision which should be exercised over public service corporations should be extended also to combinations which control necessaries of life, such as meat, oil, and coal, or which deal in them on an important scale. I have no doub that the ordinary man who has control of them is much like ourselves. I have no doubt he would like to do well, but I want to have enough supervision to help him realize that desire to do well.

I believe that the officers, and especially, the directors, of corporations should be held personally responsible when any corporation breaks the law.

Combinations in industry are the result of a necessary economic law which cannot be repealed by political legislation. The effort at prohibiting all combinations has substantially failed. The way out lies, not in attempting to prevent such combinations, but in completely controlling them in the interest of the public welfare. For that purpose the Federal Bureau of Corporations is an agency of first importance. Its powers, and therefore, its efficiency, as well as that of the Interstate Commerce Commission, should be largely increased. We have a right to expect from the Bureau of Corporations and from the Interstate Commerce Commission a very high grade of public service. We should be as sure of the proper conduct of the interstate railways and the proper management of interstate business as we are now sure of the conduct and management of the national banks, and we should have as effective supervision in one case as in the other.

[2] an estimating or fixing of the value of a thing.
[3] a privilege of a public nature given by the government to an individual or a group; for example, a franchise for a street railway.

Questions:

1. In what state did Roosevelt make his speech? Might the state make a difference as far as what a man will say there?

2. What attitude (s) does Roosevelt have concerning the common man and his relationship to "special interests?"

3. How does Roosevelt define "conservative?"

4. Does Roosevelt believe it will be an easy task to rid the nation of special interests in politics? (yes or no)

satisfy reasonable desires; that we might all have so much of the material things we now struggle for, that no one would want to rob or swindle his neighbor; that no one would worry all day, or lie awake at nights, fearing he might be brought to poverty, or thinking how he might acquire wealth.

The great cause of inequality in the distribution of wealth is inequality in the ownership of land. The ownership of land is the great fundamental fact which ultimately determines the social, the political, and consequently the intellectual and moral conditions of a people. And it must be so. For land is the habitation of man, the storehouse upon which he must draw for all his needs, the material to which his labor must be applied for the supply of all his desires; for even the products of the sea cannot be taken, the light of the sun enjoyed, or any of the forces of nature utilized, without the use of land or its products. On the land we are born, from it we live, to it we return again--children of the soil as truly as is the blade of grass or the flower of the field....Material progress cannot rid us of our dependence upon land; it can but add to the power of producing wealth from land; and hence, when land is monopolized, it might go on to infinity without increasing wages or improving the condition of those who have but their labor. It can but add to the value of land and the power which its possession gives. Everywhere, in all times, among all peoples, the possession of land is the base of aristocracy, the foundation of great fortunes, the source of power.

"There is but one way to remove an evil--and that is, to remove its cause."

Andrew Carnegie:

How is wealth to be used so that it will not tend to pauperize the community, or to increase the very evils we would gladly erase? Distributed equally among all the people in the morning, we know that there would be hell at night. Imagine a man with millions looking upon the poorer districts of a great city, and saying, "I shall cure all this." To the wretched poor he says: "You have not your share of wealth, take this," and to each one he gives his portion. A few nights later this zealous philanthropist takes his friend to see what he has accomplished, the evils of poverty he has cured. Imagine the sight they behold? Poverty, wretchedness, misery and crime cured, or even diminished? No, all these increased. The hitherto welldoing and industrious have been the thriftless and idle in receipt of unearned funds, and these hitherto self-respecting people have said: "Why should we rise in the dark and go forth to toil until dark? There is no special reward for the toiler; the idle receives equally with the industrious; we shall join their ranks." Distribute more millions, and the area of poverty, pauperism, and drunkenness is extended in ever-increasing circles of demoralization.

Thomas Macaulay, who writing in Harper's New Monthly Magazine in 1877 foresaw a violent end to the democratic experiment in the U.S.

It is quite plain that your government will never be able to restrain a distressed and discontented majority. For, with you the majority is the government, and has the rich, who are always in a minority, absolutely at its mercy. The day will come when.... a multitude of people, none of whom has had more than half a breakfast, or expects to have more than half a dinner, will choose a Legislature. Is it possible to doubt what sort of a Legislature will be chosen? On one side is a statesman preaching patience, respect for vested rights, strict observance of public faith. On the other is a demagogue, ranting about the tyranny of capitalists and money lenders and asking why anybody should be permitted to drink Champagne and to ride in a carriage while thousands of honest folks are in want of necessities. Which of the two candidates is likely to be preferred by a work-man who hears his children cry for more bread?

Sumner:

It is not at all the function of the State to make men happy. They must make themselves happy in their own way, and at their own risk. The functions of the State lie entirely in the conditions or chances under which the pursuit of happiness is carried on, so far as those conditions or chances can be affected by civil organization. Hence, liberty for labor and security for earnings are the ends for which civil institutions exist.....

Sumner:

All the material over which the protected interests wrangle and grab must be got from somebody outside of their circle. The talk is about the American laborer and American industry, but in every case in which there is not an actual production of wealth by industry there are two laborers and two industries to be considered; the one who gets and the one who gives. Every protected industry has to plead, as the major premise of its argument, that any industry which does not pay ought to be carried on at the expense of the consumers of the product, and, pay.... Hence every such industry must be a parasite on some other industry. What is the other industry? Who is the other man? This, the real question, is always overlooked.

Henry George:

In all the great American cities there is today as clearly defined a ruling class as in the most aristocratic countries of the world. Its members carry wards in their pockets, make up the slates for nominating conventions, distribute offices as they bargain together, and--though they toil not, neither do they spin--wear the best of clothes and spend money lavishly. They are men of power, whose favor the ambitious must court and whose vengence he must avoid. Who are these men? The wise, the good, the learned--men who have earned the confidence of the fellow-citizens by the purity of their lives, the splendor of their talents... their deep study of the problems of government? No; they are gamblers, saloonkeepers, pugilists, or worse, who have made a trade of controlling votes and of buying and selling offices and official acts... It is through these men that the rich corporations and powerful money interests can pack the Senate and the bench with their creatures.

Henry George:

We might not establish public tables--they would be unnecessary; but we could establish public baths, museiums, libraries, gardens, lecture rooms, music and dancing halls, theaters, universities, technical schools, shooting galleries, play grounds, gymnasiums, etc. Heat, light, and motive power, as well as water, might be donducted through our streets at public expense; our roads be lined with fruit trees; discoverers and inventors rewarded, scientific investigations supported; and in a thousand ways the public revenues made to foster efforts for the public benefit. We should reach the ideal of the socialist, but not through government repression. Government would change its character, and would become the administration of a great cooperative society. It would become merely the agency by which the common property was administered for the common benefit.

The recent alarming development and aggression of aggregated wealth, which, unless checked, will invariably lead to the pauperization and hopeless degradation of the toiling masses, render it imperative, if we desire to enjoy the blessings of life, that a check should be placed upon its power and upon unjust accumulation, and a system adopted which will secure to the laborer the fruits of his toil; and as this much-desired object can only be accomplished by the thorough unification of labor, and the united efforts of those who obey the divine injunction that "In the sweat of thy brow shalt thou eat bread," we have forred the ....(Knights of Labor), with a view of securing the organization and direction by co-operative effor of the power of the industrial classes.

....

Paradoxically, Carnegie and Sumner came to the defnse of union: Rather surprisingly, these two outstanding exponents of laissez-faire, publicly professed that labor unions were right and useful. As if that were not astonishing enough, Sumner even went so far as to say, "They have been greatly abused in the past."

Caregie, at least in public, stuck to his guns. In an article which appeared in the Forum in 1886, he spoke most approvingly of unions: "The right of the workingmen to combine and form trades-unions is no less sacred than the right of the manufacturer to enter into associations and conferences with his fellows, and it must sooner or later be conceded....My experience has been that trades-unions, upon the whole, are beneficial to both capital and labor."

So, while Carnegie extolled free competition in theory, neithe he nor others of his kind were willing to practice what they preache emphasizing once again their dualistic thinking upon economic matter For themselves, they aimed at monopoly as a legitimate goal; for labor, they demanded free competition. While a promoter like Carnegie who organized business combinations to control prices was regarded as a respectable public servant, his counterpart--the labor organizer who sought the closed shop in order to maintain wages--was branded an agitator and enemy of liberty. Likewise, to curtail production because of an oversupply of consumer goods was then, and now, considered good business practice; but to cut hours in face of an oversupply of labor was unsound economics, if not downright immoral

Andrew Carnegie:

I would have the public give due consideration to the terrible temptation to which the workingman on a strike is sometimes subjected. To expect that one dependent upon his daily wage for the necessaries of life will stand by peaceably and see a new man employed in his stead, is to expect much...the employer of labor will find it much more to his interest, wherever possible, to allow his works to remain idle and await the results of the dispute, than to employ the class of men that can be induced to take the place of other men who have stopped work...There is an unwritten law among the best workmen: "Thou shalt not take thy neighbor's job." No wise employer will lightly lose his old employees. Length of service counts for much in many ways. Calling upon strange men should be the last resort.

Labor is usually helpless against capital. The employer, perhaps, decides to shut up the shops; he ceases to make profits for a short time. There is no change in his habits, food, clothing, pleasures--no agonizing fear of want. Contrast this with his workman whose lessening means of subsistence torment him. He has few comforts, scarcely the necessities for his wife and children in health, and for the sick little one no proper treatment. It is not capital we need to guard, but helpless labor.

Henry George:

But when we consider the origin and natural sequence of things, this order is reversed; and capital instead of first is last; instead of being the employer of labor, it is in reality employed by labor. There must be land before labor can be exerted, and labor must be exerted before capital can be produced. Capital is a result of labor and is used by labor to assist it in further production. Labor is the active and initial force, and labor is therefore the employer of capital. Labor can be exerted only upon land, and it is from land that the matter which it transmutes into wealth must be drawn. Land, therefore, is the condition precedent, the field and material of labor. The natural order is land, labor, capital: and, instead of starting from capital as our initial point, we should start from land

Andrew Carnegie:

St. Nicholas Hotel, N.Y
December, 1868

Thirty-three and an income of $50,000 per annum! By this time in two years I can arrange all my business as to secure at least $50,000 per annum. Beyond this never earn--make no effort to increas fortune, but spend the surplus each year for benevolent purposes. Cast aside business forever, except for others.

Settle in Oxford, England and get a thorough education, making the acquaintance of literary men--this will take three years' active work--pay especial attention to speaking in public. Settle then in London and purchase a controlling interest in some newspaper or live review and given the general management of it attention, taking part in public affairs, especially those connected with education and improvement of the poorer classes.

Man must have an idol--the amassing of wealth is one of the worst species of idolatry--no idol more debasing than the worship of money. Whatever I engage in I must push inordinately; therefore should I be careful to choose that life which will be the most enjoyable in its character. To continue much longer overwhelmed by business cares and with most of my thoughts wholly upon the way to make more money in the shortest time, must degrade me beyond hope of permanent recovery. I will resign business at thirty-five, but during the ensuing two years I wish to spend the afternoons in receiving instruction and in reading systematically.

Questions:

1. What does Henry George feel is the cause for many of the nation's vices?
2. Why, according to George, is there waste amongst the poor?
3. What type of waste is George referring to?
4. Does George feel that the money spent to aid the poor is well spent?
5. What does George feel is the "folklore" of American wealth?
6. Why do the poor put up with the rich as far as George is concerned
7. Was George opposed to millionaires? What type of millionaire did he favor?
8. Does George contradict himself at any time?
9. How much wealth does George feel is adequate for each American?
10. How does land determine our moral, intellectual, social and political conditions?
11. What does George feel is the cause of inequality of wealth?
12. How important is the land to George?
13. Is his concept of land applicable to today's economic situation?
14. What does George mean by: "There is one way to remove an evil and that is to remove its cause."?
15. Does Carnegie believe wealth can cure the evils of society? Why?
16. Does Carnegie believe wealth will increase the evils of society? How?
17. According to Carnegie, if you give people money they will only become lazy. (true or false) Why?
18. What does Sumner feel the function of the State is?
19. Who does George feel is the ruling class in America?
20. How does George feel we should reach socialism?
21. What improvements on society that George suggested have come to pass?
22. Why did George feel the Knights of Labor was formed?
23. How did Carnegie feel about Unions?
24. What was Carnegie's dualistic thinking concerning competition within labor and within business?
25. What attitude did Carnegie have concerning workmen on a strike?
26. Why did Carnegie feel labor was helpless against management?
27. "It is not capital we need to guard, but helpless labor." What did Carnegie mean by this statement?
28. What did Carnegie believe was man's worst idol?
29. Do George and Carnegie agree on anything? What?
30. (true or false) Carnegie disliked the working class.
31. (true or false) Carnegie believed that the working man needed protection from capital.
32. Select one: Is George a. Socialist; b. Communist; c. Nazi; d. Democrat; e. Republican. Why?

Edward Bellamy
Looking Backward

"....I cannot do better than to compare society as it then was to a prodigious coach which the masses of humanity were harnessed to and dragged toilsomely along a very hilly and sandy road. The driver was hunger, and permitted no lagging, though the pace was necessarily very slow. Despite the difficulty of drawing the coach at all along so hard a road, the top was covered with passengers who never got down even at the steepest ascents. These seats on top were very breezy and comfortable. Well up out of the dust, their occupants could enjoy the scenery at their leisure, or critically discuss the merits of the straining team. Naturally such places were in great demand and the competition for them was keen, every one seeking as the first end in life to secure a seat on the coach for himself and to leave it to his child after him. By the rule of the coach a man could leave his seat to whom he wished, but on the other hand there were so many accidents by which it might at any time be wholly lost. For all that they were so easy, the seats were very insecure, and at every sudden jolt of the coach persons were slipping out of them and falling to the ground, where they were instantly compelled to take hold of the rope and help to drag the coach on which before they had ridden so pleasantly. It was naturally regarded as a terrible misfortune to lose one's seat, and the apprehension that this might happen to them or their friends was a constant cloud upon the happiness of those who rode.

"But did they think only of themselves? you ask. Was not their very luxury rendered intolerable to them by comparison with the lot of their brothers and sisters in the harness, and the knowledge that their own weight added to their toil? Had they no compassion for fellow beings from whom fortune only distinguished them? Oh, yes, commiseration was frequently expressed by those who rode for those who had to pull the coach, especially when the vehicle came to a bad place in the road, as it was constantly doing, or to a particularly steep hill. At such times, the desperate straining of the team, their agonized leaping and plunging under the pitiless lashing of hunger, the many who fainted at the rope and were trampled in the mire, made a very distressing spectacle, which often called forth highly creditable displays of feeling on the top of the coach. At such times the passengers would call down encouragingly to the toilers of the rope, exhorting them to patience, and holding out hopes of possible compensation in another world for the hardness of their lot, while others contributed to buy salves and liniments for the crippled and injured. It was agreed that it was a great pity that the coach should be so hard to pull, and there was a sense of general relief when the specially bad piece of road was gotten over. This relief was not, indeed, wholly on account of the team, for there was always some danger at these bad places of a general overturn in which all would lose their seats.

"It must in truth be admitted that the main effect of the spectacle of the misery of the toilers at the rope was to enhance the passengers' sense of the value of their seats upon the coach, and to cause them to hold on to them more desperately than before. If the passengers could only have felt assured that neither they nor their friends would ever fall from the top, it is probable that, beyond contributing to the funds for linimemts and bandages, they would have troubled themselves extremely little about those who dragged the coach."

WORD MEANINGS: prodigious--vast, immense, enormous,
compassiom- mercy,pity.
commiseration--a feeling of pity, sorrow or regret

Edward Bellamy
Looking Backward--p.2

Questions:

1. What does the "coach" symbolize? "masses of humanity?"

2. Why a "hilly and sandy road?"

3. "The driver was hunger..?" Why was the pace "necessarily very slow?"

4. Who rode on top of the coach? Why didn't those on top ever get down?

5. "Critically discuss the merits of the straining team?"

6. "Such places were in great demand?" "competition for them was keen?" "to leave it to his child after him?" "a man could leave his seat to whom he wished?"

7. "Seats were very insecure?" "jolt...slipping out of them and falling to the ground...to take hold of the ropes and help to drag the coach...?"

8. "Terrible misfortune to lose one's seat?" "was a constant cloud upon the happiness of those who rode?"

9. "Which often called forth highly creditable displays of feeling on top of the coach?" "holding out hopes of possible compensation in another world...?" "while others contributed to buy salves and liniments for the crippled and injured?"

10. "General overturn in which all would lose their seats?"

11. "To cause them to hold on to them more desperately than before?"

12. "Have troubled themselves extremely little about those who dragged the coach?"

THE POPULIST PARTY PLATFORM

"We seek to restore the government of the
Republic to the hands of the plain people..."

Introduction:

In the summer of 1892, delegates representing a number of farmers organizations gathered in Omaha, Nebraska, and organized a new political party--the People's Party, or the Populist Party. The tide of discontent that finally forced the farmers to organize a third party had been swelling for a number of years. Throughout the country, and especially in the Middle West and West, farmers had been meeting in Grange halls and schoolhouses where, in the flickering light of oil lamps, they had expressed their bitter resentment at the failure of either the Republicans or Democrats to help the farmers out of their troubles. On July 4 the 116th anniversary of the Declaration of Independence, the Populist Party adopted a platform that came to be known as, "The Farmer's Declaration of Independence."

July 4, 1892

1 Assembled upon the 116th anniversary of the Declaration of Independence, the People's Party of America, in their first nationa convention, asking for the blessing of Almighty God, put forth in the name and on behalf of the people of this country, the following preamble and declaration of principles:

2 The conditions which surround us best justify our cooperation; we meet in the midst of a nation brought to the brink of moral, political, and material ruin. Corruption dominates the ballot box, Legislatures, Congress, and touches even the courts. The people are demoralized (corrupted); most of the States have been forced to isolate the voters at the polling places to prevent universal fear and bribery. The newspapers are largely controlled by the wealthy. Public opinion is silenced. Homes are covered with mortgages. Labor is poor. And capitalists, or the rich, control the land to a great degree. The workmen in the cities are denied the right to organize for self-protection; imported cheap labor beats down their wages, a hireling standing army, unrecognize by our laws, is established to shoot them down, and they are rapidly deteriorating in wealth. The fruits of the toil of millions are boldly stolen to build up great fortunes for a few unequaled in the history of mankind; and the wealthy despise the country and endanger liberty. Because of all the above injustices, we breed the two great classes of people--tramps and millionaires.

3 We have witnessed for more than a quarter of a century the struggles of the two great political parties for power and plunder, while grievous wrongs have been inflicted upon the suffering people We charge that the controlling influences dominating both these parties have permitted the existing dreadful conditions to develop without serious effort to prevent or restrain them. Neither do they now promise us any substantial reform. They have agreed together to ignore, in the coming campaign, every issue but one. They propose to drown the outcries of a plundered people with the uproar of a pretend battle over the tariff, so that capitalists, corporations, national banks, the corrupt men who control the stock market, trusts, the depreciation of silver, and the burdens of the moneylenders may all be lost sight of. They propose to

Frederick Robinson
Theory of Democracy

All mankind are one great family, and the Almighty Father of us all has made our common mother earth to produce bountifully, and more than enough, to feed, and clothe and shelter all. He spreads his great table before us and loads it with abundance. He gives all an equal right to partake, and yet a few gluttons devour the whole and leave the rest to want. Equality comprises everything that is good; inequality everything that is evil. Equality is liberty. Liberty without equality is dead. It is a word without meaning, mere "sounding brass, and a tinkling cymbal." Equality is democracy. Everyone who truly loves the human race will favor such governments, constitutions, laws, and administrations as he believes to be productive of equality. Equality will be the test, the measure of every question on which he is to act. In all his contacts with his fellow men, in all his dealings, it will be his governing principle to do unto others, as he would that others should do unto him. This is the rock on which democracy is founded. The man that indulges himself in unnecessary show; that feels the pride of wealth or of birth; that praises himself on his talents, learning, or professional skill, and looks down with contempt on what he calls the ignorant and the vulgar; that feels himself better than the laborer, the mechanic, or the fisherman , and is not free to take him by the hand and treat him as a brother--whatever he may call himself, he is not a democract. For the spirit of democracy, which is equality, teaches us that the laborer, the producer, and not the talented, the rich, and the learned, are the benefactors of mankind. It is the laborer that provides us with food and clothing, that builds our houses, ships and factories, digs the canals, levels the railroads, and gains for us all the necessities, conveniences, and luxuries of life. How foolish then is pride; how childish, how thoughtless it is for men to expect that, because they can live at ease on hereditary wealth, because they can issue a writ, plead a religion, that they are better than their neighbors. For which is the most important to society? To be able to make a speech, or a hob nail, to issue a writ, or manufacture a shoe, to provide food and clothing and shelter for the healthy, or drugs for the sick? But the law of nature, in what is called civilized society, is reverse This law declares that industry is honorable and idleness disgraceful, that the laboring man shall have abundance and the idle shall be in want. B ut the experience shows us everywhere the idle living in palaces, caressed, honored, surrounded with all the beauties and luxuries of life, and the laborer continually reduced to wretchedness and starvation. Nearly all the evils of life, treachery, fraud, and crime, may be traced to the corruption of this law of nature. For when honest labor is looked upon as so disgraceful that men often know and feel that to bend themselves to honest injustry would injure their subsequent prospects in the world, is it strange that so many try to live without labor? And when we see the idle living in luxury and the laborer in want and disgrace, ought we to wonder that so many prefer to live by fraud, theft, robbery, or by any means rather than by honest industry? But let everyone know and feel that in exact proportion as he labors industriously in some useful employment will he improve his condition and increase his respectability; and that no one can enjoy the fruits of labor, which are wealth and respectability, without industry; and most of the fraud, hypocrisy, cunning, crime, and villainy of the world would come to an end; for misery, degradation, and want, the cause of all crime, would be removed. But the thousands live upon the millions, and these things will continue until the millions see the evil and contrive to enjoy the fruit of their own industry.

Questions:

1. What type of society would Robinson prefer?
2. Explain: "Equality is democracy."
3. What is Robinson's attitude towards labor? Clergymen?
4. What is the "law of nature" Robinson refers to?
5. Who are the "idle."
6. What, does Robinson believe, causes "nearly all the evils of life?" How does he propose to rid the land of these "evils"?
7. Compare the thinking of Bellamy with that of Robinson? How were their ideas alike? Unlike? (Think of as many comparisons as you can)
8. What type of society would Robinson prefer?

9. In what year do you think Robinson wrote this article?
10. What country do you think Robinson is from?
11. From what social class do you think Robinson developed?
12. What are the weaknesses in Robinson's arguments? Strengths?
13. What job do you think Robinson held in his country?
14. What might have motivated Robinson to write such an article? What was his purpose do you think?
15. Would you place Robinson on the Left or Right wing?
16. Select one: Was Robinson a Communist? Socialist? Liberal? Conservative? Why?

Frederick Robinson
Need for Universal Education (1840)

The cause of the people is now progressing. In order for our emancipation from the power of aristocracy to be effectual and eternal, we must carry out the great reform we have proposed: the equal mental and physical education of all, at the expense of all.

We are as yet but a half educated and half civilized people. The "few" are educated mentally (at an expense sufficient for the entire education of all); and the "many" are obliged to spend their whole time in bodily labor, neglecting their mind almost entirely. The human race can arrive at that state of knowledge, equality, and happiness, of which they are capable, only when all are educated both mentally and physically alike, at the common expense of all.

This great idea of equal, universal education has gone abroad. Its practicality has been proved. It has been shown that there is enough time between the ages 5 and 20 for every child to acquire as much intellectual knowledge as can be obtained now in the colleges of the rich, and, at the same time, learn a trade or skill.

The reign of equality will commence when the great mass of laboring people become wise enough to establish educational institutions in every neighborhood for their children, to furnish them with instructors, books, apparatus, land, and machinery. For, when the intellectual abilities of all shall be enlarged by education, and the productive powers of all shall be brought into action, a state of independency, comfort, wealth, happiness, and benevolent feeling will follow, of which we now cannot conceive.

Questions:

1. True or False. Robinson proposes that the government pay for education.
2. Yes or no. Is it possible to "equally educate mentally and physically all Americans? Why?
3. How important is education to Robinson?
4. True or False. What Robinson said is not even partially true today. Justify your answer.

Poverty Obstructed Progress
Henry George

From The Problems of Progress

If it were possible to express in figures the direct financial loss which society suffers from the social maladjustments which condemn large classes to poverty and vice, the estimate would be appalling. England maintains over a million paupers on official charity; the city of New York alone spends over seven million dollars a year in a similar way. But what is spent from public funds, what is spent by charitable societies and what is spent in individual charity, would, if added, be but the first and smallest item in the account. The potential earnings of the labor thus going to waste, the cost of the reckless, improvident and idle habits thus generated; the money lost, to consider nothing more, suggested by the shocking statistics of death, and especially infant death, among the poorer classes; the waste indicated by the gin palaces or taverns which increase as poverty deepends; the damage done by the vermin of society that are bred of poverty and destitution--the thieves, prostitutes, beggars and tramps; the cost of guarding society against them, are all items in the sum which the present unjust and unequal distribution of wealth takes from the total which, with present means of production, society might enjoy.

……

Nor could he find any indication of the lessening of the gap between the rich and poor. To George, all the tendencies of the day seemed to be leading not merely to the concentration but to the perpetuation of great fortunes. If social and economic conditions favored the millionaire, so also did popular folklore:

Thier great fortunes, many of them running up high into the millions, seemed to them and to many others, as the best proofs of the justice of existing social conditions in rewarding wisdom, foresight, industry, and thrift; whereas, the truth is that these fortunes are but the gains of monopoly, and are necessarily made at the expense of labor. But the fact that those thus enriched started as laborers hides this, and the same feeling which leads every ticket holder in a lottery to delight in imagination in the magnitude of the prizes, has prevented even the poor from quarreling with a system which thus made many poor men rich.

For his part, George said he would put no limit on acquisition-- no matter how many millions a man got; if he got them fairly, they were his. He was convinced, furthermore, that a just distribution of wealth in the United States was perfectly possible.

……

I do not of course, mean that we all might have an array of servants; that we all might outshine each other in dress, in equipage, in the lavishness of our balls or dinners, in the magnificence of our houses. That would be a contradition in terms. What I mean is, that we all might have leisure, comfort and abundance, not merely of the necessaries, but even of what are now esteemed the elegancies and luxuries of life. I do not mean to say that we could all have, or would want to have, the same quantity of all the different forms of wealth. But I do mean to say that we might all have enough wealth to

The powers delegated by the proposed Constitution to the federal government are few and defined. Those which are to remain in the State governments are numerous and indefinite. Those powers in the federal government will be exercised principally on external objects, as war, peace negotiations, and foreign commerce; with the power of taxation connected for the most part, to foreign commerce. The powers reserved for the States will extend to all the objects which, in everyday life, concern the lives, liberties and properties of the people, and the internal order, improvement and prosperity of the state.

The operations of the Federal government will be most extensive and important in time of war and danger; those of the State governments in times of peace and security. As there will probably be few periods of war and danger, the State governments will here enjoy another advantage over the Federal government...

If the new Constitution be examined accurately and impartially it will be found that the changes which it proposes consists much less in the addition of NEW POWERSto the Union, than in the strengthening of its ORIGINAL POWERS. The regulation of commerce, it is true, is a new power; but that seems to be an addition which few oppose.... The powers relating to war and peace, armies and fleets, treaties and finance, with the other more considerable powers, are already in the existing Congress of the Articles of Confederation. The proposed change does not enlarge the powers, it only substitutes a more effective means of administering them. The change relating to taxation may be regarded as the most important; and yet the present Congress have as complete authority to REQUIRE of the States indefinite amounts of money for the common defense and general welfare as the future Congress will have to require them of individual citizens; and the citizens will be no more bound than the States themselves have been, to pay the amount taxed them.....

Publius

Questions:

1. How does Madison answer his own question: "Will the powers granted to the federal government be dangerous to the country?" Yes or no. Abbreviate his arguments and list them.
2. What does Madison feel is the "supreme object" of the government?
3. In what situation would Madison want the plan of convention rejected?
4. How has America!s method of electing its president changed since Madison's time? Senators? Representatives?
5. What powers does Madison given to the federal government? The states?
6. When will the federal government, according to Madison, be most important? The State governments?
7. What does Madison say the proposed change in government accomplishes?
8. What deficiency in the Articles of Confederation is discussed by Madison in the last sentence?
9. After reading through the selected Federalist Papers, does it appear that our existing federal government has grown beyond the boundaries set for it by the "Founding Fathers?" If yes, why might this be the case?

Professor William Hesseltine
Regions, Classes and Sections in American History

The different interests of sections have constituted the major problem of the American past, and seem to be the major issues of the future. Rise of the "regionalists" -- they hope to interpret the living society of the nation and the quest for political, cultural and spiritual independence; in the end they hope to bring together the work of ecologists,[1] geographers, sociologists, and economists to focus on the region and to produce a program for regional development within a unified nation. This would promote unity and cooperation in contrast to the diverse[2], selfish nature of sectionalism. Regionalism is a concept based upon the assumption that American life is organized on local bases.

First and most stable of all regional classifications is based upon physical geography--it is the most significant in American history. Climate, rainfall, topography[3], vegetation, and natural transportation facilities. Eight regions at the time of American Revolution: N.E. seacoast, N.E. river valleys, Hudson Valley, Valleys of Delaware and Schuylkill, Chesapeake tidewater, Caroline rice coast, Virginia and Caroline Piedmonts, and the Appalachian highways. In the process of settlement, regions changed their character, their people, even their boundaries; but they remained. The nation was born in the region and the region remained as the dominant force in the nation.

Beginning with the concept of the American nation as a series of regions, the student of regionalism and history should recognize that the population of the nation is divided within itself into many economic, cultural and social groups. From the beginning of settlement in the new world, there has been a constant evolution[4] of groups and constant conflict between social classes. For example, the rise of the Virginia aristocracy in colonial times; Quakers in Philadelphia; landlords in Maryland; merchants of New York and merchant-ship builders of New England seacost became dominant groups in their regions, and other groups were faced with choice of yielding to them or migrating to another region. Yet, within each new settlement, the process of group division was repeated. There were always class distinctions, even on the frontier.

Contests between groups for control of their region has been a moving force in American history. Control involves possession and manipulation of all these social, political, and economic institutions, which affect its people. First among these institutions, are the local agencies of government and of politics. Note the primary importance of local government. "American" politics are regional politics and the control of local and state governments is the prime consideration of ruling groups.

In the democracy, however, the control of political institutions cannot be obtained without the assistance of the intellectual institutions of the regions: schools, press and pulpit, libraries, forums, theaters, lectures, lyceums, etc. Essential localism of the schools render them especially subject to the dominant groups of the region: colonial NE, Horance Mann, Morrill act. The church also reflects the opinions of the local dominant groups; each church yields to the pressure of its region and becomes a supporter of its dominant group. Control of a region's political and intellectual institutions is merely secondary to the control of the purely economic institutions which lie at the foundation of the region's life: banks, credit facilities, railroads, shipping.

1 ecologists--study concerned with the spacing of people and of institutions and resulting interdependency.

2 diverse--dissimilar, varied, different.

3 topography--the surface features of the earth or a particular region physical characteristics.

4 evolution--slow, gradual process of change.

Questions:

1. How does the author define regionalism?
2. "The nation was born in the region and the region remained as the dominant force in the nation." Put the quote in your own words. Explain what Mr. Hesseltine is saying.
3. Why do the groups that Mr. Hesseltine refers to migrate to other regions?
4. What role does Hesseltine believe the church, school, press, etc. play in American History?
5. What is most important to control in a given region? Why?
6. What is the historical importance of this paper?

Frederich Robinson

Speech -- July 4, 1834

(Need for Reform)

It becomes us, fellow citizens, to rejoice on the anniversary of the day when freedom and equality were declared the natural birthrite of man. It is the people's day and should always be devoted to them--to keeping alive in them a knowledge of their rights and should never be used for any other purpose. It should always be regarded as the time of our political emancipation from a foreign power and the beginning of a new era in the social and political condition of the country. But while we rejoice over the advantages won by the labors and sacrifices of our fathers, we must not suppose there is nothing left for us to do but glory in their achievments and boast of being their descendants. It behooves us rather, on this day each year to examine what progress we have made in knowledge and to inquire what steps we have taken in the promotion of human happiness. We should see what we have done for the general spreading of truth and a just knowledge of rights among the great masses of people; find in what way we have improved our social and political condition and to devise means for a more perfect enjoyment of the liberty and equality that our fathers purchased for us with their blood.

The condition of the people can never remain static. When not improving they are sinking deeper and deeper into slavery. Eternal alertness can alone sustain them, and never-ceasing struggle is necessary for social and political improvement. For the interests of the few are always contrary to the interests of the many. The prosperity of the one always comes from the hardships of the others. As the millions become intelligent, united and independent, the thousands will lose their power, importance, and wealth. The "few" have always understood this and have seen the necessity of the closest union among themselves in order to maintain their high position. The "many" have not only been ignorant of this fact, but have always regarded the "few" as their benefactors, protectors and friends. Hence we are doomed to a never-ceasing struggle for the enjoyment of our rights and improvement of our condition until we work out a reform in society and the common good of all the people shall constitute the interest of all.

Reform must come from the People

Our destiny is in our hands, and we must rely upon ourselves alone for the improvement of our government, the reform of our laws, and the bettering of our social and political position. If we sink into slavery, we alone are to blame. For the governments, the constitutions, the laws, and all the institutions of this country are in our hands, and we have the power to mold them to our will. Every institution, every law, and every action of our government comes from ourselves; we are responsible for all the evils arising from bad laws, for defective constitutions, evil administrations, or whatever in society tends to injure the people. Our fathers purchased for us political rights and an equality of privileges which we have not yet had the intelligence to appreciate, the courage to protect, or the wisdom to enjoy. While we have been comparing our condition with the miserable slavery of other nations and boasting of our advantages--ignorantly supposing that we were already in possession of the highest degree of liberty and enjoying the most perfect equality, the enemy has been silently taking away our rights. But this delusion has passed and the people are beginning to awake.

But how shall we avoid these evils, how improve our condition and scatter the blessing of equality all over the land? We must do it by union among ourselves and by acting in harmony with the democracy of the country. The "few" can contrive means to keep the people divided among themselves, but they fall easily. There are but two great political divisions in the world: those who favor a government of the people and those who favor a government over the people; a government of the many and a government of the few; of liberty and of slavery. It has often been shown by reasons and arguments that a government over the people shall not succeed. But everywhere experience shows us the idle living in palaces, caressed, honored, and surrounded by all the beauties and luxuries of life and the laborer continually reduced to misery and starvation.

Nearly all the evils of life--treachery, fraud and crime--may be traced to the perversion of this law of nature. For when honest labor is looked on as so disgraceful that men often feel that to bind themselves to it would injure their subsequent prospects in the world, it is not strange that so many contrive to live without labor. And when we see the idle living in luxury and the laborer in want and disgrace, why should we wonder that so many prefer to live by fraud, theft, or by any other means rather than by honest industry?

Other Reforms

We have pledged ourselves to be opposed to all laws and legislation relating to religion. In this we recognize that the rights of the mind are individual rights. We accord to each individual the right of thinking, judging, and believing for himself; he must have the right of communicating his notions, opinions or beliefs and enforcing them by every argument and with all the power and ingenuity of which he is capable. And no man should be blamed, injured or molested on account of his opinions on any subject, whether they are right or wrong. We always suppose that our own opinions to be right or we would have renounced them, but with respect to belief, everyone must be the judge for himself. A person may be blamed for a conceited, bigoted attachment to his own opinions if he will not hear and rationally consider all the reasons, proofs and arguments against them. Everyone is justly blamable and answerable to himself for erroneous opinions because of lack of an impartial examination of them or an obstinate conviction of their infallibility. And this is all the blame that can be reasonably attached to anyone because of his belief, for the opinions of men are above their control. Everyone comes to a conclusion on a given subject after enough evidence is given to produce a conviction in his mind. The amount of evidence may be enough for one man, but quite insufficient to another, so that one may believe and another disbelieve the same thing, having the same evidence and both being equally sincere and guiltless. Our opinions are not subject to our will. We cannot believe and disbelieve as we please. Consequently, it is as unjust to make a man accountable for his beliefs as it would be to make him accountable for his personal appearance; both the one and the other are formed by circumstances not within their voluntary control. It is as absurd to persecute a man for his beliefs as for his looks. The only effect that such laws could have on those who have unpopular or unlawful beliefs would be to make them conceal their beliefs and in self-defense and against their own will, to cover themselves in a garb of hypocrisy. Formerly, we had laws to scourge, imprison, torture, burn, behead, or hang anyone who would not agree to a certain belief, so that everyone must see that in order to live, he assume that belief. Those who take the law as a shield for their opinion prove that they themselves, at least, are distrustful of their soundness and truth.

We have also pledged ourselves to the world in favor of the repeal of the militia laws and the abolition of imprisonment for debt. We have reason to believe that the unequal and hated militia service has already been improved by our exertions. And the pledge which we gave the world for the abolition of imprisonment for debt, we have the satisfaction of knowing, is this day redeemed.*

Our success in these measures should encourage us to continue until all the reforms we have proposed are accomplished. United, continued efforts will carry them all; for in all these great reforms, the democracy of the country is with us. We have the satisfaction of knowing that we are pioneers in the great cause; and we must be willing to expose ourselves to the shot of the enemy, while clearing the way for the whole army to come up and carry the works.

*The Massachusetts law prohibiting imprisonment for debt, in whose passage Robinson had been most active and influential, went into operation on July 4, 1834.

Questions:

1. What reforms does Robinson seek in American life?
2. Who is the "enemy" to Robinson?
3. As far as the author is concerned what are the two political divisions in the world?
4. What does Robinson accuse the "few" of doing in American society?
5. Robinson argues for freedom of speech. In your own words, what is he saying? What are his arguments? Do they apply in the 1960's as well as the 1830's? Or must we fear expressing our opinion?

PRECEDING PAGE MISSING

Frederick Robinson

The Parties of the Country

(1840)

The aristocracy of our country are well aware that their notions of government are unsound, and in order to prevent the name of aristocracy from being attached to them, they continually contrive to change their party name. It was first Tory, then Federalist, then no party, then a mixture, then National Republican, now Whig, and the next name they assume perhaps will be republican or democrat. But by whatever name they reorganize themselves, the true democracy of the country--the working classes--ought to be able to distinguish the enemy.

Ye may know them by their fruit. Ye may know them by their action toward the people. Ye may know them by their disposition to club together, and constitute societies and incorporations for the enjoyment of exclusive privileges and protection of each other in their monopolies. They are composed in general of all those who are, or who believe themselves to be favored by some circumstances of fortune. They are those, with some honorable exceptions, who have contrived to live without labor off others.

There is no one man in a hundred whose interests--if he knew his own true interests--would lead him to join this party. Their numbers would be very small and truly contemptible, were it not for the ignorance, the foolish pride and vanity of many who are always itching to get into "high society", those who are always ready to follow the rich wherever they lead, careless of the liberty and happiness of others as long as they receive some little notice from their masters. Every individual attached to this party from interest, from vanity, or pride, should justly receive the title of partisan.

It is impossible for a true democrat to be a party man, or for those favorable to democracy to constitute a party. For how can he, who looks upon all men as equal and contends that there is no power, no advantage, no privilege which can be enjoyed by any one man or class alone, be a partisan? How can that which embraces and equalizes all be called a party?

We have often been deceived by those whom we have raised to power; it is therefore difficult to know on which side the peoples' interests lie. This is a part of the policy of the rich. Some ambitious, learned, and talented demagogue, finding it the cheapest way to power and wealth, courts the people whom he at heart despises. and after making great hypocritical pretensions to democracy, is raised to office by the people. Being now raised to distinction by the "many", he begins to court the favor of the "few". Having political authority he now longs for riches, titles, and family alliances with the proud and wealthy. He begins to interest himself in the exclusive policy of the aristocracy, finally becoming identified with the exclusive policy of the "few". In the meantime the opposition gradually softens down. Their papers become less poisonous, they seem half way to approve; and in order to deceive the people, pretend to be converted to their cause. He is now the candidate of the rich, and the people are deceived and continue also to support him. But experience ought to teach us that when opposition towards any one begins to abate, it is time to watch him closely; and when this opposition is changed into favor it is time to desert him.

The aristocracy of our country, under all the different names which they have assumed, have never failed to receive with open arms all traitors to the cause of the people, and have always put them forward in the warfare they have unceasingly waged against free principles. They know that the traitors and deserters have put everything at stake and must, therefore, fight with the most reckless and desperate fury. The traitors know that if the party to which they deserted fails, they will lose all and become hated by those whom they deserted and betrayed.

In all the schemes of the aristocracy to deceive us, patriotism and love of country is forever upon their tongues. The rich merchant, who is completely absorbed in profits and loses, will only boast much of patriotism instead of laboring to make the condition of his race more equal, comfortable and happy. The sentimentalist and poet may feel the love of country is an attachment to the hills and valleys, the mountains and cataracts, the springs and streams, the rivers and oceans and, if charged with want of patriotism, would be offended because he mistakes that attachment to the land as patriotism. And the capitalist, if he loves the banks, the insurance companies and all the incorporate joint stock institutions of the country, thinks that this love is patriotism. But real patriotism consists not in a love of the soil, climate, or scenery because these may be found in other countries. Neither does it consist in an attachment to governments, constitutions and laws; if it did, the inhabitant of Turkey would be unpatriotic if he did not love the laws which enable the Grand Turk to strike off his head at any time. Patriotism consists in nothing but a brotherly affection, love for the whole human family, and a constant desire to promote the happiness of all.

The true lover of his country will thus feel an attachment to the constitutions and laws of his country if they promote the happiness, interests, rights and liberties of the whole people; and he will have hate for all institutions which have an opposite effect. For whatever exalts the few, humbles the many; and luxury and splendor grow from poverty and want. Some must be poor, that others may be rich. Wherever we find the "few" in possession of excessive riches, we find the "many" reduced to excessive poverty. For riches can no more exist without poverty than mountains without valleys. If there were not a single rich man in the world, there would be no less wealth in the world, but it would be spread equally over the whole surface of society, giving equal abundance, comfort and happiness to all.

Questions:

1. How does Robinson define patriotism? What is your definition of patriotism?
2. "Some must be poor that others may be rich?" Is this necessarily true? Why?
3. In what way do the wealthy gain control of the government according to Robinson?
4. How does the enemy "hide itself", according to Robinson?
5. Compare Madison's Federalist #10 to this article. How are they alike? Different?

PRECEDING PAGES MISSING

12 In the first place, however small the republic may be the representatives must be raised to a certain number to guard agains the plots of a few; and, however large it may be, they must be limited to a certain number in order to guard against the confusion of the many. The people will have more of a choice in a large republic than a small, as they will have more men to choose from, and consequently a greater liklihood of a better choice.

13 In the next place, as each representative will be chosen by a greater number of citizens in the large than in the small republic, it will be more difficult for poor candidates to get into office.

14 It must be confessed that there are inconveniences on both sides. By having too many voters the representative may be too little acquainted with all the local and lesser interests; as by reducing it too much, you render the representative attached to only local and lesser interests and too little fit to pursue national objectives. The Constitution forms a happy combination--the great interests are referred to the national government and the local interests to the states.

15 The other point of difference is: the greater number of citizens and extent of territory which a republican form of government makes possible as opposed to a democracy.

Factions would be less dreaded in the republican form of government than the democratic. The smaller the society, the fewer probably will be the distinct factions composing it; the fewer the distinct factions the more frequently will a majority be found of the same party; and the smaller the number of citizens composing a majority and the smaller the area in which they are placed, the more easily will they get together and carry out their plans of oppression. Enlarge both the number of citizens and area and you take in a greater variety of parties and interest you make it less likely that a majority of the whole population will have a common motive to invade the rights of other citizens; or, if such a motive exists, it will be difficult for those to realize their own strengths and act together.

16 It clearly appears that a republic has an advantage over a democracy. The influence of men representing certain factions may kindle a flame within their own state, but will be unable to spread the fire thoughout the other states. A rage for an abolition of debts, for an equal division of property or any other wicked project, will be less likely to spread outside the area where it began.

Pubilus

Federalist No. 10 -- Con't.

Questions:

1. True or False: It would not be feasible to have pure democracy for a city government in Manitowoc.
2. True or False: Everybody is a member of factions.
3. True or False: Madison believed it likely that elected representatives could see and pursue the public good better than the citizens.
4. What is the main point Madison is making:
   a. a pure democracy is the best organization to control faction
   b. a republic is a good system to control factions.
   c. majority rule protects the minority.
   d. a government won't work unless people forget their selfish interest and work for the common good.
5. Yes or No: Is Madison's logic correct in these statements:
   a. "Freedom is to faction what air is to fire. You cannot have one without the other."
   b. "Thus, it may well happen, the representatives of the people will be more in tune with the public good than the people themselves."
   c. "As each representative will be chosen by a greater number of citizens in the large than in the small republic, it will be more difficult for poor candidates to get into office."
6. According to Madison's definition, is the United States today a republic or a pure democracy?
7. Madison states that there are two ways of controlling faction: one, by removing its causes and the other by controlling its effects. Which of the two does he prefer?
8. Do you agree with the statement made by Madison? "The most common and durable source of factions has been the various and unequal distributions of property and wealth." Tell why?
9. Is Madison more worried about a situation in which a faction is made up of a majority or when it is made up of a minority? Why?
10. What paragraph written by Madison says almost the same thing as the following quotation from American Government: "The strongest and most effective interest groups are without any doubt those that are based upon man's economic interests in earning a living and in acquiring, holding, and using property."
11. If Madison had his choice which would he have preferred: (A) One party system (B) Two party system (C) Multiparty system?

THE FEDERALIST NO. 35

(Hamilton)

To the people of the State of New York:

One objection to a federal government is that the House of Representatives is not sufficiently numerous for the reception of all the different classes of citizens. Therefore, the objectors believe, the House will not include the interests and feelings of every part of the country.

The idea of an actual representation of all classes of the people, by persons of each class, is altogether unrealistic. Unless it were clearly provided in the constitution, that each different occupation should send one or more members, then this would nver take place in practice. Workers and manufacturers will always be inclined, with few exceptions, to give their votes to merchants, in preference to people of their own profession or trade. Many citizens are well aware that the worker and manufacturer furnish the material for the merchants' business. Many of them, indeed, are connected with the operation of trade. They know that the merchant is their friend and business partner; and they are aware that their interests can be more effectively promoted by the merchant than by themselves. The merchants are better fitted for the task, and workers and manufacturers will give their votes to the merchants. We must therefore consider merchants as the natural representative of all these classes of the community.

With regard to learned professions, little need be written; they truly form no distinct interest in society; and according to their situation and talents, will get votes from themselves and other parts of the community.

Nothing remains but the landed interest; and this, in a political view, and particularly in relation to taxes, I take to be perfectly united, from the richest landlord down to the poorest farm helper. No tax can be put on land which will not affect the big land owner, as well as the small one. Every land owner till therefore have a common interest to keep the taxes on land as low as possible, and common interest will bind the small and large land holder together. But, even if there is a difference of interest between the large and average land owner, what reason is there to believe that the first would stand a better chance of being in the House of Representatives than the other? If we look at the facts, and look into our own senate and assembly, we find moderate numbers from both groups in each Where the qualifications of the voters are the same, whether they have to choose a small or a large number, votes will be cast for those in whom they have most confidence, whether these happen to be rich property owners or others.

Some say it is necessary that all classes of citizens should have some of their own members in the House of Representatives, in order that their feelings and interests may be better understood and taken care of. But we have seen that this will never happen under any arrangement that leaves the votes of the people free. When this is the case, the representative body, with two few exceptions, will be composed of landholders, merchants and men of the learned professions. But, what of it? Where is the danger that the interests and feelings of the other classes of citizens will not be understood or attended to by these three groups of men. Will not the landholder know and feel whatever will help the interest of landed property? Will not the merchant understand and help as far as may be proper, the interest of the worker and manufacturing interest, to which his business is so closely attached. Will not the man of the learned profession stand between these two groups as a neutral party, promoting either one, at different times, so far as the one is to influence the general interest of the country?

If we take into account the various different little groups which appear now and then in parts of society, is the man who is well read and well traveled less likely to be a good judge of these little groups, than one who is a part of this little group itself?

Is it not natural that a man who is trying to win the favor and votes of his fellow citizens will be careful to inform himself of the voters feelings and attitudes, and will allow them to influence him? This dependence and the necessity of being bound himself, are the strong ties of sympathy between representatives and the voter.

There is no part of the administration of government that requires extensive information and knowledge of political economy as the business of taxation. The man who has this knowledge, will be least likely to resort to oppressive measures, or to sacrificing any particular class of citizens to the taking of revenue. There can be no doubt that in order to have a fair exercise of the power of taxation, it is necessary that a representative in whose hands it is, shall be acquainted with the general habits and thinking of all the people, and with the resources of the country. Let every citizen judge for himself where the qualified men are most likely to be found.

(These men should then sit in the House of Representatives.)

Pubilus

Questions: True (X) False (0)

1. The "objectors" to the Constitution believed that the House of Representatives was numerous enough to support all classes of voters.
2. To Hamilton, class and occupation meant the same thing.
3. Hamilton believed that all landowners, both rich and poor, would select landowners to represent them.
4. Hamilton seemed to favor the rich landowner as the most likely candidate to represent all landowners.
5. As far as Hamilton was concerned, the "learned profession" was in a class all by themselves.

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6. Does Hamilton believe that people vote according to their interests? Why or why not? Cite proof to support your answer.
7. Who *might* make up Hamilton's "learned class?"
8. What groups of citizens did Hamilton believe would vote for the merchant class? Why?
9. Who is Hamilton attempting to place in the House of Representatives? Why?

THE FEDERALIST No. 45
(Madison)

To the People of the State of New York:

The question arises, will the powers granted to the federal government be dangerous to the country?

None who oppose the plan of the convention, instead of considering in the first place what degree of power was absolutely necessary for the purposes of the federal government, have spent too much time studying the possible consequences of the power proposed for the particular states. But if the Union be essential to the security of the people of America against foreign danger; if it be essential to their security against arguments and wars among the different states; if it be essential to guard them against those violent factions which poison the blessings of freedom; if the Union be essential to the happiness of the people of America, is it not ridiculous as an objection to a government (without which the objects of the Union cannot be attained) that such a government may subtract from the importance of the governments of the individual states?

Was the American Revolution carried out, the blood of thousands spilt, and the hard earned money of millions squandered, not that the American people should enjoy peace, liberty and safety, but that the individual state governments might enjoy a certain extent of power, and be given certain aspects of sovereignty? We have heard of the doctrine in the Old World, that the people were made for kings, not kings for the people. Is the same idea to be revived in the NEW, in another shape--that the solid happiness of the people is to be sacrificed to the views of state governments? Politicians must remember that the public good, the real welfare of the great body of the people, is the supreme object to be pursued; and that no form of government whatever has any other value than as it may be fitted for the achievement of this object. If the plan of convention was against the public happiness, my voice would be, Reject the plan. Were the Union itself inconsistent with the public happiness it would be Abolish the Union. Likewise, if the States power cannot be harmonized with the happiness of the people, the voice of every good citizen must be, Let the former be sacrificed to the latter.....

The State governments may be regarded as essential parts of the federal government; while the federal government is not essential to the operation or organization of the State governments. Without the intervention of the State legislatures, the President cannot be elected at all. They must in all cases have a great share in his appointment, and will, perhaps, in most cases amongst themselves determine it. The Senate will be elected absolutely and exclusively by the State legislatures. Even the House of Representatives, though drawn from the people, will be chosen very much under the influence of that class of men, whose influence over the people obtains for themselves an election into the State legislatures. Thus each of the principal branches of the federal government will owe its existence more or less to the favor of the State governments and must consequently feel a dependence, which is much more likely to produce a disposition too cringing than too overbearing towards him. On the other side, the component parts of the State government will in no instance be indebted for his appointment to the direct agency of the federal government; and very little, if at all, to the local influence of its members.

READINGS AND QUESTIONS IN U. S. HISTORY: ELEVENTH GRADE

An eleventh-grade U. S. history teacher developed this series of lessons to be used periodically throughout the year. The general format presents a quotation written by a historical figure and follows it with a series of questions for student consideration.

The choice of quotations has an important bearing on the kind of thinking possible in the questions. These selections consider broad philosophical problems of a political, economic, and religious nature. As such, they lend themselves to higher levels of thought. A theme running through a number of selections is the liberal-conservative spectrum of political and economic controversy.

Another significant factor in the choice of articles is the difficulty of the ideas and vocabulary. The passages are within the range of comprehension of most eleventh-graders. Difficult phraseology is made easier to understand by simplifying the vocabulary and sentence structure. At the same time, an effort is made to maintain the stylistic flavor of the original writing.

The most common form of question in the project asks the students to tell what the author's ideas are on some subject or what the author meant by a certain passage. With the regular textbook, this kind of question is best classified as memory. However, in this case, many of the quotations are written in archaic language and the ideas are a little more difficult to abstract than would normally be true in the text. Thus, the questions are better classified as translation.

Interpretation questions are fairly common. Examples on "The Federalist No. 10" would be Questions 1, 2, 4, 5, 6, and 11. Several good interpretation questions ask for relating the ideas of two or more written, or an idea to modern life. Application questions are not developed, but there are good opportunities for them. Several questions ask the students to think about the author's logic, but they are on the interpretation rather than analysis level. No examples of synthesis are found. A number of exercises are culminated by the use of one or more evaluation questions. Examples of this are found in the exercises on "The Federalist No. 45," William Hesseltine's "Regions, Classes and Sections in American History," and Frederich Robinson's "Need for Reform."

The nature and organization of these exercises suggest the importance that the teacher places on higher levels of thinking. In many published units, one or more evaluation questions are tacked on the end in such a way that students give a few ideas off the tops of their heads. In this eleventh-grade project, a whole period or more is set aside for consideration of philosophical problems.

A deficiency in the rationale on questioning as originally presented is suggested by this project. Some higher level questions are easy to construct (especially in the evaluation category); however, these questions may be treated superficially, if the teacher does not prepare to give them the consideration they deserve. A description of strategies for getting the most out of higher level questions is presented later in this report.

FEDERALIST No. 2

(Jay)

To the People of the State of New York:

When the people of America stop to think that they are now called upon to decide a question, as important as they have ever considered, they will, I am sure, take a very extensive and serious view of it.

It cannot be denied that government is necessary. We must have it. And, whenever and however we start building a new government, undeniably the people must agree, and give to that government some of their rights, in order for that government to have necessary powers. It is well worthy of consideration therefore, whether it would contribute more to the interest of the people of America that they should be one nation (under one federal government) or that they should divide themselves into separate countries, and give to the head of each country, the same kind of powers which they are advised to place in one national government.

Until recently, it has been an unquestioned opinion, that the prosperity of the people of America depended on their continuing firmly united, and the wishes, prayers and efforts of our best and wisest citizens have been constantly directed to that object. But men now appear, who insist that this opinion is wrong, and that instead of looking for safety and happiness in uniting the States, we ought to seek it in a division of the States into distant countries. However unusual this new belief may appear, it nevertheless has its followers; and certain characters who were much opposed to it formerly are now its supporters. Whatever may be the arguments or motives which have brought about this change in the feelings and writings of these gentlemen, it certainly would not be wise for the people to adopt these new political beliefs without being fully convinced that they are founded in truth.

It has often given me pleasure to observe that independent America was not composed of detached and distant territories, but that one connected, fertile, wide-spreading country was the portion of our forebears. God has in a particular manner blessed it with a variety of soils and products, and watered it with innumerable streams, for the delight and benefit of its inhabitants. A series of navigable waters form a kind of chain round its borders, as if to bind it together, while the rivers, running at convenient distances, present the people with highways for transportation and the exchange of ideas and commodities.

With equal pleasure I have as often taken notice that God has been pleased to give this one connected country to one united people--a people descended from the same ancestors, speaking the same language, professing the same religion, attached to the same principle of government, very similar in their manners and customs, and who, by combining their arms and efforts, fighting side by side thoughout a long and bloody war, have nobly established freedom and independence.

This country and the people seems to have been made for each other, and it appears as if it was the design of God, that an inheritance so proper and convenient for a band of brothers, united to each other by the strongest tie, should never be split into a number of unsocial, jealous and alien countries.

For all general purposes we have been one people; each individual citizen everywhere enjoying the same rights, privileges and protection. As a nation we have made peace and war; as a nation we have defeated our common enemies; as a nation we have formed alliances, and made treaties, and entered various agreements and meetings with foreign states.

A strong sense of the value and blessings of union caused the people, earlier, to begin a federal government and to preserve it. They formed it almost as soon as they had an opportunity to get together politically; at a time when their homes were in flames, when many of their friends were bleeding, and the progress of hatred and desolation left little room for calm serious thought and research, which must always come before the formation of a wise and well-balanced government for a free people. It is not to be wondered at, that, a government begun under such unfavorable conditions, should in time be found greatly deficient and inadequate.

This intelligent people noticed and regretted their defects. Still they remained no less attached to union than in love with freedom. Consequently, they observed the danger which immediately threatened the Union and their freedom; and being persuaded that adequate security for both could only be found in a national government more wisely framed than the earlier government, they, as with one voice, met at Philadelphia, to take that important subject under consideration....

It is worthwhile noting that every Congress, as well as the Philadelphia Convention, have continually joined with the people in thinking that the prosperity of America depended on its Union--to preserve the Union was the great object of the people in forming the Philadelphia Convention, and it is also the great object of the plan which the Convention has advised them to adopt. For what good purpose, therefore, are the attempts at this time made by some men to cheapen the importance of Union? Or why is it suggested that three or four confederacies would be better than one? I am persuaded in my own mind that the people have always thought right on this subject and that uniform attachment to the cause of the Union is based on adequate reasons. Those who advance the idea of substituting a number of confederacies at the convention, seem clearly to foresee that the rejection of this Union plan would put the continuance of the Union in serious difficulty. That certainly would be the case, and I sincerely wish that it may be as clearly foreseen by every good citizen, that whenever the dissolving of the Union arrives, America will have reason to exclaim, in the words of the poet: "FAREWELL! A LONG FAREWELL TO ALL MY GREATNESS."

Publius

Questions:

1. What position does Jay take on unity of the several states?
2. What arguments does Jay make for unity? List. Which of these are sound, logical arguments? Why? Which are not? Why?
3. Why does Jay believe the Philadelphia Convention was called?
4. Why doesn't Jay give any arguments against Union?

THE FEDERALIST NO. 10
(Madison)

To the People of the State of New York;

1 Among the numerous advantages promised by a well-constructed Union of States, none deserves to be more accurately developed than its tendency to break and control the violence of faction. By a faction, I understand a number of citizens, whether amounting to a majority or a minority of all the people, who are united and stirred by some common feeling or interest opposite to the rights of other citizens or to the common interests of the community.

2 There are two methods of curing the mischiefs of faction; one, by removing its causes; the other, by controling its effects There are two methods of removing the causes of faction, the one, by destroying the freedom which is necessary to its existence; the other, by giving to every person the very same opinions, the very same feelings and the very same interests.

3 It could never be more truly said, that the first remedy is worse than the disease. Freedom is to faction what air is to fire. You cannot have one without the other. It would be stupid to abolish freedom--which is essential to political life--because it nourishes faction, as it would be to wish to abolish air--which is essential to all life--because it gives fire destructive power. As long as the thinking man is liable to error or mistake and he has the freedom to use it, different opinions will be forme The basic causes of faction are in the nature of man and thus they divided into parties, who seem to prefer to oppress each other rather than cooperate for the common good.

4 The most common and durable source of factions has been the various and unequal distribution of property and wealth. Those who have and those who do not have property or wealth have always formed differing actions in society, creditiors and debtors. the landed interest as opposed to the manufacturing interest; wit many lesser interests growing up of necessity in modern countries divided the people into different classes with opposing points of view on various subjects. The regulation of these various interests forms the major task of modern governmental legislation.

5 Nc man is allowed to be a judge in his own cause, because his interest would certainly sway his judgment. If this is true, then is a body of men unfit to be the judge of its interests? Yet, much of our [illegible] does not concern the rights of single persons but the rights of large bodies of citizens. And what of the men who pass the laws? Aren't they composed of different classes of legislators, who will benefit from their own legislation? What if a law is proposed concerning private debts? Here, it is a question to which the creditors are parties on one side and the debtors on the other. The answer to the problem. Justice ought to be some place between the two factions. Yet, the factions are and must be themselves the judges; and the most numerous party or, in other words, the most powerful faction must be expected to win. Shall manufacturing in the United States be encouraged, and

in what degree, by restrictions on foreign manufacturing? is a question which would be differently decided by the landed and manufacturing classes and probably by neither with a sole regard to the public good. The distribution of taxes on various forms of property is perhaps the legislative act in which greater opportunity and temptation are given to a strong faction than any other. Every penny with which they overburden the inferior number is a penny saved to their own pockets. Simply enough, then, cause of factions cannot be removed, relief is only to be sought in the means of controlling its effects.

6 If a faction consists of less than a majority, relief is supplied when the majority defeats the lesser faction by regular wote. There is nothing the lesser faction can do legally. When a majority is included in a faction, popular government enables it to sacrifice to its interests the public good and the rights of other citizens. To maintain the public good and private rights against the dangers of such a faction and at the same time to preserve popular government is the great object with which we are here concerned.

7 How can we do this? By one of two ways only. Either the presence of the same interest in a majority must be prevented, or the majority, having such an interest must be prevented from uniting and carrying into effect their schemes of oppression. There is no other way. We well know that neither moral or religious motives can be relied on as an adequate control.

8 From this view of the subject, it may be concluded that a pure democracy (by which I mean a society consisting of a small number of citizens who get together and carry on the functions of government in person) can not offer a cure for the mischiefs of faction. A common interest will, in almost every case, be felt by a majority of the whole. Hence it is that such democracie have always been short lived and violent in their death. Many thinkers who like democracies have falsely supposed that by reducing mankind to a perfect equality in their political rights, they would at the same time be perfectly equalized in their possessions opinions and feelings.

9 A republic (by which I mean a government in which representation of the people takes place) promises the cure for which we are seeking. Let us look at the differences between a republic and a pure democracy.

10 The two great points of difference between a democracy and a republic are: first, in a republic the people elect a small number of citizens to govern them; secondly, a republic may extend over a greater number of citizens and a greater area of country.

11 The effect of the first difference is, on the one hand, to refine and enlarge the peoples views by passing them through a chosen body of citizens, whose wisdom may discover the true intere of the country. Thus, it may well happen, the representatives of the people will be more in tune with the public good than the people themselves. On the other hand, the effect may be differen Men may by corruption or other means first get the votes of the people then betray the peoples interests. The question resulting is, whether small or large republics are more favorable to the election of honest guardians of the public good. It is clearly decided in favor of the larger for two reasons.

PRECEDING PAGE MISSING

Appendix

THE FUNDAMENTALS OF COMPOSITION IN ART

Pre-test: Create an interesting non-figurative design (a design that does not represent any visual object) in a 7" x 10" rectangle on a 9" x 12" paper.

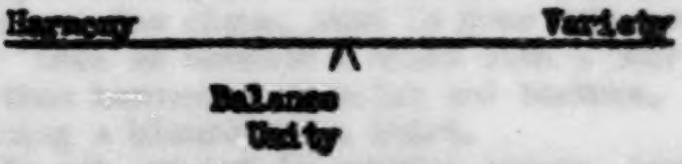
We have found that the two main aims in art are: form follows function and unity. Unity appears to be the more important because we will discover that there are many objects created that do not suit their purpose well. If they fail to do this they lack unity. Then, unity or oneness is the main aim in art.

The task or problem of the artist is to organize the elements of art (line, shape, value, texture, color and space) into an integrated, meaningful unity according to a purpose. Suppose you were interested in making a picture, in order to express your feelings about an exciting, wonderful experience, would you use drab, gray colors? Why? .. The form or at least part of the form, the color, would not suit it's purpose or function. If you were an automobile or fashion designer, you would have to considor how much chrome to use or the kind of fabric to use. You would have to consider the lines, the kinds of shapes, the amount of texture, the relationships of colors, etc., in relation to the function and purpose of that car or dress. You would really have to organize the elements of art into a meaningful unity. If you wanted to buy a well designed automobile or dress, you still must know how the art elements are organized. Designers and artists use some principles to guide them in organizing the art elements. Through an understanding of them, they are able to create beautiful objects, things that are pleasant to the eye.

The Principles of Organization are:

1. Harmony
2. Movement
3. Rhythm
4. Balance
5. Variety
6. Contrast
7. Emphasis

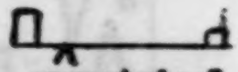
Within these seven principles, the artist - designer tries to achieve a balance between harmony and variety, considering as his main aim unity.



I. BALANCE: may be defined as a state of equilibrium between weights, different elements or opposing forces.

Two kinds of balance:

symmetrical

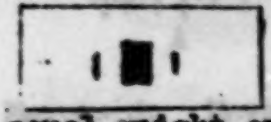

asymmetrical

1. Define symmetrical balance:

2. Define asymmetrical balance:

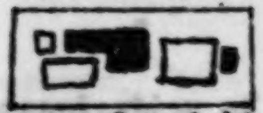
In art, a picture feels comfortable to look at if the elements in it are balanced. In a picture, balance is not physical. Larger shapes appear to be heavier because of their size in relation to smaller shapes.

e.g. 2 - dimensional symmetrical balance



equal weight on both sides of central axis

2 - dimensional asymmetrical balance



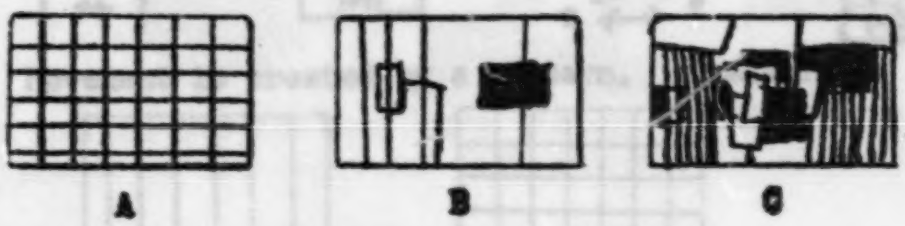
unequal weight, but balanced

Prob. 1. a) Make 4 rectangles 3" x 4". Draw non-figurative designs with straight lines only in each rectangle. Each of them should be an example of dynamic balance.

b) Evaluate them. Label 1, 2, 3 & 4. 1 - the best. 4 - the poorest.

II. VARIETY: in art refers to that which makes interesting. If something is boring, it needs variety. There are differences introduced when variety is achieved. The artist-designer creates variety through contrast and emphasis, through varying sizes, shapes, textures, lines, etc.

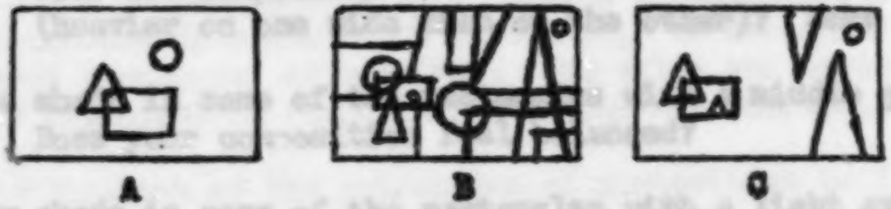
e.g.



a) Do you find contrast in c?
b) What part of c is emphasized? Why?

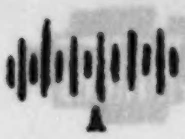
III. HARMONY: is the counterweight of variety. It is an agreement of parts together. We frequently associate harmony with music. Good harmony sounds good to the ears. If your little brother drops his arm on the piano, what is your response? Doesn't sound very good? When we combine a shirt with a pair of slacks, we try to make them harmonize in color and texture. We do the same in combining a blouse and a skirt.

In art, we try to combine shapes, textures, lines, etc., in order to create a pleasant harmony through repetition or rhythm and movement.



a) Which of the above utilizes the principle of repetition the best? Poorest?
b) Which of the above contains the best harmony? Poorest?

A. Rhythm: We create rhythm by repetition. A repetition of a line, shape, texture, value or color creates a movement. This is not an actual movement on the art object. It is really the movement of the eye in response to what it sees.

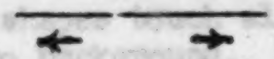

A

B

C

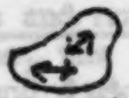
B. Movement: Movement is the result of the organization of repetition-rhythm and pattern. When we look at the top of a cluttered dresser our eyes become mixed up. It's not so pleasant to look at. When looking at a designed object, our eyes are directed, pleasantly through or across it. There are various ways of creating movement.

a) A line by itself appears to create movement.

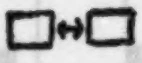


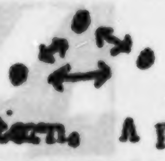
Movement is created right or left.

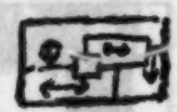
b) A shape by itself contains movement.



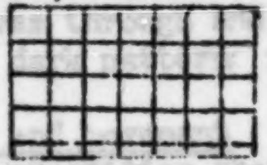
c) There is an implied movement between things. The eye responds this way.







d) Movement is created by a pattern. A pattern is created by a repetition.



Prob. 2. Make an arial view of a city. Begin with a rectangle off center of the paper. Add overlapping rectangles. Keep all rectangles moving horizontally or vertically.

Allow the cluster of shapes to move off the paper at 3 sides. Vary the sizes of the rectangles.

a) Is there movement created?
b) How is it created?
c) What kind of balance is employed?
d) Which art element is used in conjunction with the principle of variety?

Step 2. Make the design appear balanced by shading in some of the rectangular shapes with a very dark value.

e) Does the composition feel well balanced or does it feel lopsided (heavier on one side than on the other)? Make it balance.

Step 3. Now shade in some of the rectangles with a middle gray value.

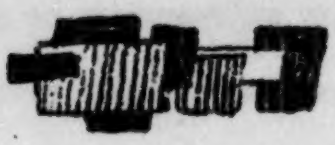
f) Does your composition feel balanced?

Step 4. Now shade in some of the rectangles with a light gray value. Leave some of the rectangles white as the lightest value.

g) Does your composition feel well balanced now?
h) Do you think your design has a better movement now than it did when you finished step 2? Why?

Transitions: You have created transitions between your darkest values with gray values. The movement is smoother or not as jerky. A transition is something like bridge, an easier way to move between two places. On a two-dimensional surface, we can create transitions with lines, values, textures, etc.

e.g.



Prob. 3. Shapes on a ground and shapes without a ground. Make two rectangles 7" x 10" on a 12" x 18" piece of paper. Label them (A) and (B).

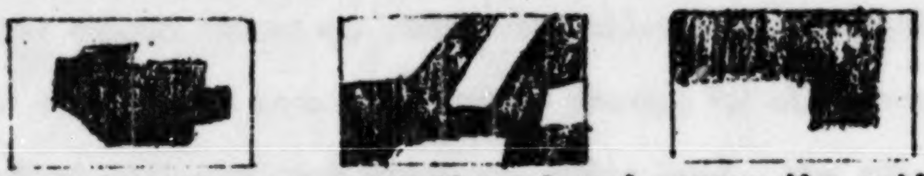
a) Create a non-figurative design with irregular shaped rectangles. Do not let these shapes touch the outside edges of the rectangle. Keep all rectangular shapes moving horizontally or vertically. Use value and texture. Apply the principles of organization.

b) Create a non-figurative design with irregular shaped rectangles. Make the shapes touch all sides of the rectangle so that there appears to be no background. Keep all shapes moving horizontally or vertically. Use value and texture. Apply the principles of organization.

Pattern in relation to balance and movement

On a 2-dimensional surface, the artist-designer tries to achieve a balance between the total light and dark pattern in a composition.

e.g.

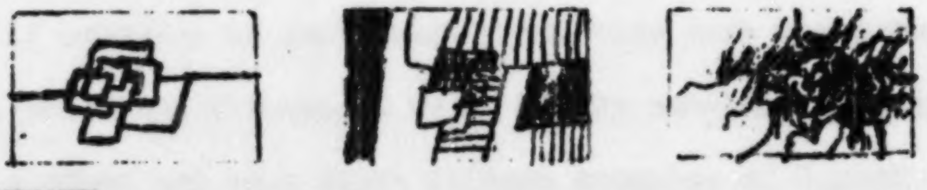


Can you see how the eye moves through and across the entire rectangle when a balance of the light and dark pattern is achieved?

Emphasis in relation to balance and movement

Each particular part of a composition should receive its proper degree of emphasis. Sometimes the artist-designer wishes to have some part of his art object featured (this depends on the function or purpose of the object). In order to merit attention, a featured part should be in contrast with its surrounding area.

e.g.



Prob. 4. On harmony

Make a rectangle 7" x 10". Create a non-figurative design. Use rectangles. Introduce some new kinds of shapes. In arranging the shapes, keep the movement horizontal or vertical. Use value and texture. Apply the principles of organization (especially harmony-rhythm-repetition and movement).

Prob. 5. Application of the principles of composition to the arrangement of visual objects. On a 12" x 18" piece of white paper, draw the objects on the table (junk) in an interesting arrangement. Make the objects appear flat (2-dimensional). Consider them as shapes not as objects. Invent any other shapes necessary to a good composition or to achieving unity. Apply the principles of organization.

a) Look at some realistic painting. Can you find the principles of organization at work in them?
b) Can you find the principles of organization in nature?
c) It has been found that when the principles of organization have been used well, things become more pleasant to look at. Why?

PRECEDING PAGES MISSING

Visual representation was the first unit of study executed at the beginning of the school year. The Taxonomy of Questions was used as a tool in teaching a number of principles on perspective and proportion. Four weeks were spent in this study and a surprising improvement in representing three-dimensional form on a two-dimensional surface occurred. Greater improvements were made using the taxonomy than on previous experience in which the taxonomy was not used.

Drawing is a vital part of visual expression. The student must be enabled to communicate his ideas visually. Though, this paper is concerned with the teaching of composition, it should be understood that visual representation does play an important role in the total aesthetic growth of the student.

After four weeks of drawing, desirable class room conditions were fairly well established. The students understood that an art class was a discipline much like other courses that demand thinking. They were allowed to talk quietly, if it was necessary. Some success had been achieved in drawing by all students and as a consequence, rapport with the instructor was quite good. The students were not inhibited, but responsibly understood the rules of order within the classroom.

The first concept of composition presented was the relationship between form and function or purpose. A filmstrip on contemporary American domestic architecture was shown. This art form was presented because of its personal relevance to adolescent students. It was selected on the assumption that the student might respond more favorably than if examples of contemporary painting were presented to him. Architecture contains a practical element, a value highly cherished by American culture.

After the classes had seen about fifteen examples of domestic architecture, the question was asked, "What is the purpose of a home?". From the evidence they had witnessed, they wrote as many answeres as they could. This type of question may be classed in the interpretation category in the taxonomy. The students made an inferential judgement or generalization from the form of architecture as well as from their own experience with homes. Most of them had not thought about the purpose or function of a home before. This concept began to take conscious, objective shape.

Next, the students were presented with three examples of contemporary designed dining sets. Each of them had certain characteristics that were similar and different. Another series of interpretation questions were presented (verbally). "What is the purpose of a dining set?" The second question: "Does the purpose of an object determine the kind of shape it is? How and why?". The first question was relatively easy to solve through common sense and the practical experience of all adolescent students. The second question is more complex and could not be answered correctly without training in formal logic. This question could be classed in the analysis category. The students did answer the question affirmatively and supported their answers by saying that though each set was somewhat different, the shape of these sets had some common similarities. This question became more understandable in the discussion of the next problem. A dining chair and a casual living room chair were shown on the opaque projector. After an examination of the chairs, the questions were asked, "What is the purpose of the living room chair?" and "What is the function or purpose of the dining room chair?". The answers were fairly specific. Then a more complex question followed: "How did the function of the living room chair determine its shape?".

After numerous examples of practical objects were shown and questions similar to those above were given, the students were required to write some generalizations drawn from this discussion. This interpretation question is slightly more complex than previous interpretation questions given. The student assembles the evidence that had been presented, arranges it into logical order and then makes a generalization.

The method of teaching this concept is based on inductive reasoning processes. It is agreed and proven that many forms of knowledge are retained longer when learned inductively. However, there are statistic studies that also confirm that not all forms of knowledge need to be learned inductively. A combination of inductive and deductive reasoning processes have been used in this study. This teacher has found that there is not enough time in one school year to teach only inductively.

This inital concept that the purpose of an object determines the form of an object was practiced in teaching all subject matter and media. For example: in the painting unit, the controlling statement, visual idea or the feeling conveyed by a painting was arrived at through the form. In the art metal unit, this concept was foremost in planning and designing various jewelry forms.

The next concept taught was the second of the main aims of art, namely unity. This concept was taught in a long range process. It was related to each of the individual concepts taught. The introduction to the concept was presented as follows: man in his incompleteness strives toward fulfilling his needs, toward becoming complete, toward creating meaning, toward achieving unity. Unity is a state of oneness. Unity in art is an integration of all the parts. In a work of art, the elements, the materials and the purpose of the object must be organized together into a unity. This is a very abstract concept and cannot be taught meaningfully independent of the other concepts.

Before introducing the elements and the principles of organization a pre-test was used in order to find out what general advantages teaching with the taxonomy could offer.

This test was based on a sequential drawing experiment done by Robert Burkhardt and associates at Pennsylvania State University.[1] It was their intention to show what gains could be made in learning by a self-discovery rather than teacher-oriented method. In my study, the sequential drawing idea was used as a pre-test. It gave opportunity for the students to exemplify their creative and aesthetic knowledge at this point in their art training.

An assemblage was constructed as a stimulus for the test drawing. See ill. no. 1.

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[1] Robert C. Burkhart, "Conditions Increasing Self-reflective Learning in Art", School Arts, October, 1964, p. 23-30.

Ill. no. 1

The students were given a sheet of 12" x 18" white paper, a Japanese brush, a sharpened stick, water and ink. They were told to make an interesting drawing within a 25 minute time limit. This was the limit of teacher instruction. After the time limit was finished, they were given a mimeographed sheet of questions to answer. They were:

1. How did you get started?
2. Did you have any purposes toward which you were working or did you have anything in mind about what the drawing may look like?
3. How do you think your work could be improved?

The questions were constructed to help the student become aware of his method of working as well as to enable him to become conscious of what he felt was good and poor in his drawing. The amount of learning was determined by him alone. The teacher did not interfer during or following the drawing. The second day, the students were given the same materials, their self-evaluation form, a 25 minute time limit and told to create an interesting drawing. After the drawing experience, they answered the questions on the self-evaluation form. This time the questions were as follows:

1. Do you think this drawing is better or worse than drawing no. 1?
2. How is it better or worse?
3. Did you start the same way in drawing no. 2 as you did in drawing no. 1?
4. How do you think drawing no. 2 could be improved?

On the third and final day, conditions and procedures were the same as in drawing experiences no. 1 and no. 2. There was a general marked improvement in drawing no. 3 in comparison with drawing no. 1.

ART CONCEPTS: SENIOR HIGH

A high-school art teacher wrote this paper describing his efforts to use the taxonomy of questions in his course. Two significant ideas emanate from this paper. First: there seems to be no difficulty in using the definitions of various kinds of questions in the field of art. This strengthens the hypothesis that the definitions apply to all subjects dealing partly or wholly with cognitive learning. Second: the use of taxonomy can be fostered by defining a course of study in terms of broad concepts that are to be used in various categories of thinking. The art teacher expresses his intent in these words:

> It is the thesis of this study that the main objectives of art education might be better achieved through a moderately structured curriculum based on the general principles of art and presented with careful consideration of the mental processes by which students assimilate the concepts. This thesis is based on the assumption that a moderately structured curriculum might prove not to be restrictive if it leads students to grasp the concepts more deeply and thereby releases the students to use the concepts more imaginatively.

The first page of the excerpts from the paper presents the concepts that are to be emphasized. Pages 2-5 describe part of the approach used in developing the concepts. The teacher shows his ability to define the course in terms of the categories of the taxonomy of questions. The remaining pages reproduce some guide sheets that the teacher gave to the students. The guide sheets illustrate the manner in which the concepts are defined and present the questions based on the concepts. Although a variety of questions are asked, the teacher does not quite get into the application, synthesis, and evaluation categories in their purest form. This would require that the students be led to use the principles without specifically being told to do so--perhaps in a new media.

The contribution of this paper is that the organization of the course around basic principles creates a classroom situation in which it is simple to ask questions on all levels throughout the entire course.

PRECEDING PAGE MISSING

A Rationale Based on Concepts and Forms of Thought

Composition should be taught to the student so that he may solve any kind of visual art problem and respond emotionally to the form of any work of art. This supposition has led to a search for the basic concepts of visual composition. I am indebted to the work of Jerome Brunner for his summary of the Woods Hole Conference. A group of thirty-five scientists, scholars and educators met to discuss education in science in our primary and secondary schools and how it might be improved. These people came to this conclusion: "Learning should serve the future, that it should be useable. If so, then the teaching and learning of structure, rather than simply the mastery of facts and techniques is the essence of transfer teaching."[1] What Brunner refers to as structure is the learning of a general idea which can then be used as a basis for recognizing and solving subsequent problems that may be related to the original idea. Structure and basic foundation concepts or principles of a subject are equated.

The basic concepts used in this composition study have been derived from Johannes Itten's basic design course[2] used at the Bauhaus and from the work of Ocvirk, Bone, Stinson and Wigg.[3] The structure is based on the following concepts:

Aims
  1. Form follows function
  2. Unity

Elements of Art
  1. Line
  2. Shape
  3. Value
  4. Texture
  5. Color
  6. Space

Principles of Organization
  1. Harmony
  2. Movement
  3. Rhythm
  4. Balance
  5. Variety
  6. Contrast
  7. Emphasis.

These concepts will be explained in detail later in the paper. Most art teachers probably are familiar with these principles and have used them in their classes.

---

[1] Jerome S. Brunner, The Process of Education (New York: Vintage Books, 1963).

[2] Johannes Itten, Design and Form (New York: Reinhold Publishing Corporation, 1964).

[3] Otto G. Ocvirk, Robert Bone, Robert Stinson and Philip Wigg, Art Fundamentals, Theory and Practice (Dubuque, Iowa: Wm. C. Brown Company Publishers, 1960).

Application of the Rationale

Considering the objective of educating aesthetic sensitivity, the idea of concept teaching, and The Taxonomy of Questions, the following design for teaching visual composition was constructed.

This composition curriculum was used in two beginning high school art classes. The course is entitled Art I or Introduction to Art. The classes were composed of sophmores, juniors and seniors. For the majority, the last formal art experiences were encountered in the 6th grade; some of them had had a semester of art in the 7th and 8th grades.

The main objectives of Art I are:

1. to develop an appreciation of the visual arts.
2. to develop a perceptual awareness of art and environment.
3. to develop a higher aesthetic preference.
4. to enable the student to produce increasingly significant art forms in relation to his ability.
5. to develop necessary art skills; a means to a creative product.
6. to develop all kinds of thought processes with an emphasis on divergent or creative thinking.

The curriculum of the course has been designed considering that the majority of students would terminate formal art training at the end of the course. As a consequence, the ultimate aim has been to produce good art consumers, (appreciators). It is with these ends in mind that the composition aspect of art education was structured and executed. It should be understood that this composition curriculum has only been tried once. This study has not been a scientific experiment, but a pilot project in the developmental stage. It is possible that a number of things could be changed advantageously. The basic ideas may offer numerous implications for art teachers in their own struggle in educating young people in art.

LIGHT: SENIOR HIGH PHYSICS

This unit was developed by a twelfth-grade physics teacher. Only a small portion is reproduced but the entire project follows the format illustrated here. The unit treats the topic of "light" as developed in Chapters 37-43 in Exploring Physics by Brinckerhoff, Cross, and Lazarus.

The questions in this unit are classified in the memory and interpretation categories, with a few examples of translation. The unit is full of definitions, principles, and formulas which the teacher asks the students to remember and to use in new situations. The thinking is interpretive, because the questions clearly tell the ideas to be employed in solving the problems.

Two insights are suggested by this unit. First, in many of the other units presented, the teachers have obviously followed patterns for questions as described in the rationale on questioning. This physics teacher has included a good proportion of questions above the memory level, but the problems do not show any deliberate effort to achieve various categories of thinking. The absence of questions in the top four categories appears to reflect a weakness in the presentation of the rationale to the teacher, because he was not convinced of the need to give students practice in the highest levels of thinking. Perhaps the nature of thinking in the top categories was not made clear to this teacher.

A second insight is that this veteran teacher has at hand a wealth of new situations into which the principles, definitions, and formulas can be used by the students. However, the use does not rise to the application level within this teaching situation, because in a unit on light the students know that all problems require use of the ideas on light. This suggests the need for a new kind of lesson that would be taught fairly late in the year. This lesson would be introduced with a description of application thinking. Next, questions would be presented on the subject matter of all units studied during the year. The questions would require students to determine the formula, definition or principle that applies to the problem and then use it in the solution. This unit would best be performed on an open-book basis.

The importance of practice in application thinking is that a student may be able to use a principle, definition, or formula when told to do so but may not be able to use it when the problem does not explicitly identify the key idea. Application thinking is vital in practicing the transfer of training.

Chapter 38

The Path of Light

I. Reflection of Light

A. The Laws of Reflection

1. What is the first law of reflection?
    a. What is the ray of incident?
    b. What do we mean by the line of normal?
    c. What is the ray of reflection?
    d. Explain the angle of incidence.
    e. Explain the angle of reflection.
2. What is the second law of reflection?
    a. What do we mean when we say: "Lying in the same plane?"

B. Images In a Plane Mirror

1. Describe the image formed in a plane mirror.
    a. Describe its position, its size and its location.
    b. Is the image right side up or inverted?
2. Why is the image reversed?
    a. Grasp your right ear with your right hand and look into a mirror. Study your image. Describe what you see.
    b. Hold, you right hand in front of a plain mirror. Study the image formed in the mirror. Doesn't it look like your left hand?
3. What is a real image?
    a. List several characteristics of real images.
    b. Are real images always inverted?
    c. Can real images be projected?
4. What is a virtual image?
    a. List several characteristics of virtual images.
    b. Can virtual images be projected.
5. What is meant by diffuse reflection?
    a. What conditions are necessary to produce diffuse reflection?

C. Images In a Convex Mirror

1. Describe the image formed by a convex mirror.
    a. Is it larger or smaller?
    b. Is it inverted or right side up?
    c. Is it distorted or symetrical?
    d. Can you name several good uses for the convex mirror?
    e. What determines the focal point of this mirror?

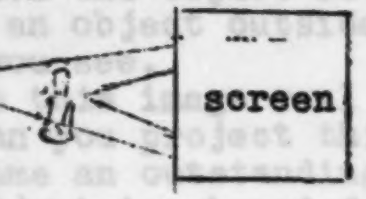
D. Images In a Concave Mirror

1. Describe the two kinds of images that can be produced by the concave mirror.
2. Locate the focal point?
3. The focal point is determined by the formula $\frac{R}{2}$ Explain this formula.
4. Place an object inside F in a concave mirror. Describe the image that you see.
    a. Is this image real or virtual?
    b. Can this image be projected?
    c. Name several good uses for the concave mirror when the object is placed inside F.

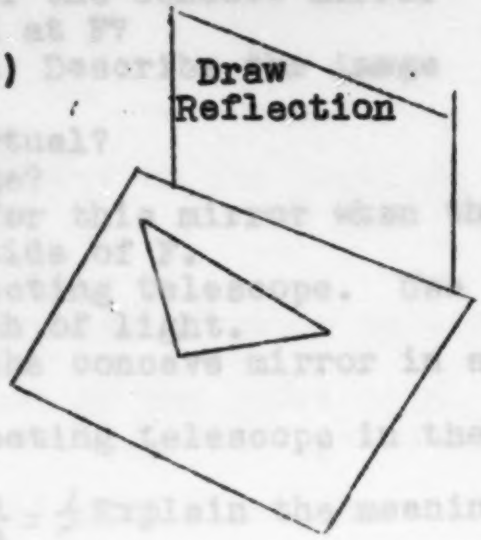
Chapter 38 (continued)

6. In each of the following diagrams, give all of the possibilities of what must be behind the screen to cause the light rays to behave as they do. (no combinations)

(a)



(c)



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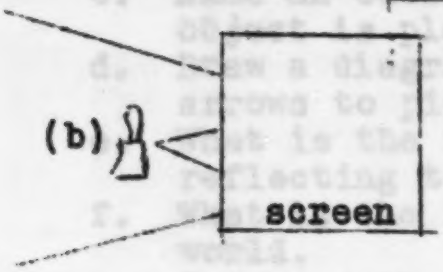


II. Refraction of Light

A. The Laws of Refraction
   1. What is meant by refraction?
   2. What is the first law of refraction?
   3. What is the second law of refraction?
   4. When will a ray of light show no refraction?
   5. In a diagram show the angle of incidence and the angle of refraction.

B. Light Rays From Air Into Water
   1. Trace a ray of light from air into water and demonstrate the first law of refraction.

C. Light Rays From Water Into Air
   1. Trace the ray of light from water into air and demonstrate the second law of refraction.
   2. Demonstrate the critical angle.
   3. What is the critical angle for water?
   4. When the critical angle is reached, what is the degree angle for refraction?
   5. Demonstrate that when light strikes a surface at an angle greater than its critical angle, the light will be internally reflected?

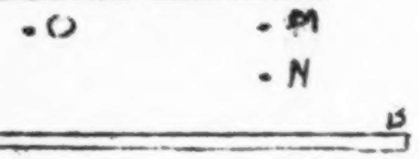
D. What Causes Refraction?
   1. What is the speed of light in air?
   2. What is the speed of light in water?
   3. What is the index of refraction of water?
   4. Show mathematically that the index of refraction of water is 1.33?
   5. What is the index of refraction of glass?
      a. Can you show this mathematically?
   6. The index of refraction of diamonds is 2.42. Can you explain this mathematically.

Chapter 38 (continued)

5. Place an object exactly at F
   a. What kind of image is produced?
   b. Name several good uses for the concave mirror when the object is placed at F?
6. Place an object outside of F. Describe the image that you see.
   a. Is this image real or virtual?
   b. Can you project this image?
   c. Name an outstanding use for this mirror when the object is placed far outside of F.
   d. Draw a diagram of a reflecting telescope. Use arrows to picture the path of light.
   e. What is the function of the concave mirror in a reflecting telescope.
   f. What is the largest reflecting telescope in the world.
   g. In using the formula $\frac{1}{D'}+\frac{1}{R}=\frac{1}{F}$ Explain the meaning of each letter?
   h. In using the formula $\frac{S_o}{S_i}=\frac{D_o}{D_i}$ Explain the meaning of each letter?
   i. Turn to page 192 in the Visualized Physics. Work the five problems.
      Note: Convex mirrors always produce virtual images. Therefore, you should make the focal lengths a negative quantity.

E. Laboratory Work on Reflections
   1. Exp. 37 Images in a Plane Mirror Page 153
   2. Exp. 38 Images in Curved Mirrors Page 155
      a. Work sheet 23. Reflection of Light Page 157

F. Evaluation -- Testing
   1. The rear view mirror of an automobile shows an erect, virtual image that is smaller than the object. What kind of a mirror is it? ______________
   2. An object is located 20 cm. in front of a concave mirror of 10 cm. focal length. Show a diagram:
      a. Where the image is formed.
      b. What is the size of the image with respect to the object?
   3. What is the minimum length of a mirror in order for a six foot man to see a full view of himself in it? ______
   4. If a man walks toward a plane mirror at 4 mi/hr., his image will move ____________ ____________ ____________ (with respect to him)
   5. (a) Find the position of the image. of O in the plane mirror AB.
      (b) Can a man at M see his image?
      (c) When the man moves from M to N where does the image of O move?



Chapter 38 (continued)

E. Explain Snell's Law using the formula $\begin{matrix}\sin i \\ \sin r\end{matrix}$ K

F. Solve this problem:

$$\begin{matrix} & \sin 45 \\ K & \sin 28 \end{matrix}$$

G. Does Snell's Law prove the wave theory or the particle theory? Explain?

H. Effects of Refraction
   1. Why does a pencil placed in a glass of water appear to be broken?
   2. Explain the statement: Because of the refraction of light from the sun to the earth, we have several more minutes of daylight.
   3. How do you explain the shimmering of light above a hot pavement on a bright day?
   4. What is the scientific explanation for a mirage?
   5. An astronaut in orbit above the earth's atmosphere sees the sky black at all times, both day and night. From the ground, however, the daytime sky is bright, and often blue. Can you explain this?
   6. Most of the time the sun appears as a brilliant white disk in the sky. However, at sunrise and sunset it often looks yellow, orange, or red. Can you explain this?

I. Laboratory Work
   1. Exp. 39 (a) Refraction of Light Through a Parallel-Aided Piece of Glass.
      Exp. 39 (b) Refraction of Light Through a Triangular Prism.

J. Problems -- Textbook pages 531-532

K. Questions -- Textbook pages 530-531

L. Evaluation -- Testing

to compose a sufficient number of good questions to have a real impact on the course of study. The refinement of the rationale presented later in this paper suggests ways of getting around these problems.

THE TAXONOMY OF QUESTIONING

BOOKKEEPING I

It seems to me that in teaching bookkeeping to beginners it is so very easy to teach the "how" and to check on this knowledge than to teach the "why" and to check on it. Yet without a thorough knowledge of the "why" bookkeeping becomes more difficult as each chapter is completed, and many are lost on the way. It has always been my contention that in high school classes it is better for some of the students to concentrate on learning a little--and that well--than learning the mechanics of many things--and none of them really well. Maybe these questions could help to teach the "why" --or at least to better indicate where the "why" is not being understood at all.

Questions are based on the text 20th Century Bookkeeping and Accounting by Carlson, Forkner, Boynton -- Southwestern Publishing Company

CHAPTER I

1. A balance sheet is divided into two parts--on the left-had side you will always find all of the Assets because ______________________; on the right hand side you will always find all of the Liabilities and Proprietorship because this side indicates __________ F __________. Remember that it is a fact that all property is owned by someone.
2. Why is the proprietorship of a business called the Net Worth?
3. In the future if you run across the terms net and gross in the same context, which do you think will always be the smaller amount? Why? If, at this time, you do not know the meaning of either of these terms be sure to use a dictionary.
4. If you know how much a man owns and you know how much he owes, how do you find his net worth? If you know how much a man's proprietorship is and how much his liabilities are, how can you find how much he owns?
5. Very often you hear a man who owns a business say, "I certainly have a poor business. I only have $500 cash on hand." Explain how wrong his reasoning is.

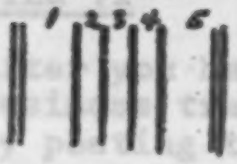
CHAPTER II

1. It is a fact that every journal entry must have debits which equal credits. After you have entered all of the Assets as debits and all of the Liabilities as credits, your opening entry will not be equal. Why?

2. After you have entered this missing item, do you have to add the columns to prove their equality? If not, why not?

3. If you find at any time that the total debits does not equal the total credits in your general journal, you know you have made an error. Give at least two reasons why you should find this error immediately and not w wait until a later date.

4. Why is it important that your penmanship be good in doing bookkeeping. Why should your numbers be clearly written. Why should you be careful to put each number in its proper position as indicated by the lines in the amount columns of a journal.

5. 

To the left is an illustration of an amount column. What goes into Column 1 - 2 - 3 - 4 - 5?

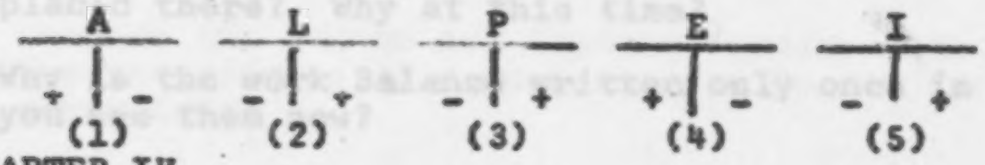
CHAPTER III

1. Why are journal pages and ledger accounts numbered?

2. Assets are numbered 11 through 19. If you had only 2 assets, 11 and 12, give at least two reasons why it isn't logical to number your first liability 13.

3. It seems so much easier when posting to just put the account numbers in the journal all at one time--after all they are easily memorized and you can write them it before you begin or after you are finished with all of the posting. Why is this wrong? What difficulties might you encounter?

4. Some accountants indicate accounts by number instead of by name== for instance Cash would be recorded as 11 instead of writing the word. Do you think this is practical? Can you name some advantages? Some disadvantages?



CHAPTER IV

1. Do you see a relationship or pattern between the first 3 facts listed above to the bookkeeping equation? EAx Explain.

2. What is the relationship of the increases and decreases in 4 and 5 to the increases and decreases in 3?

3. Using the above chart, give your interpretation of double-entry bookkeeping-

CHAPTER V

1. Explain the logic behind the use of special columns in a journal. Would you get the correct answer if you did all of the work individually?
2. Explain how to prove cash. Why should you do this before before you post?
3. Explain how to prove that all the debits in a journal equal all the credits. Why should you do this before you post? If your debit total equals your credit total, can you take it as an absolute fact that you have made no errors in your journal? Why or why not?

CHAPTER VI

1. After you have gone through all of the trouble of journalizing each business transaction, why is it necessary to do all of the work again by posting to the ledger?
2. Wouldn't it be easier in the long run if accounts in a ledger were arranged alphabetically? Why or why not?
3. Which amounts in a columnar journal are always posted individually? Why? Which are posted as totals? Why? Which are never posted? Why?
4. What is always the last step in posting? Why?
5. How can you prove the correctness of a columnar journal?
6. Should you prove cash before posting a columnar journal? Why or why not?
7. How would you prove cash?
8. What do single lines indicate? Double line? Will this always hold true?
9. When these symbols are found under the double lines of a cash journal what would each indicate? (✓) (11) (41) When would they be placed there? Why at this time?
10. Why is the work Balance written only once in the ledger accounts as you see them now?

CHAPTER VII

1. Explain the significance of the small pencil figures used in ledger accounts.
2. Explain the difference in meaning, in a bookkeeping sense, of the words balance, in balance, balancing, trial balance.
3. Can you think of any possible way that the trial balance could appear to be correct yet an error later be found in the books?

CHAPTER VIII

1. After making a work sheet, can you explain more thoroughly the reason for the arrangement of accounts in the ledger?

2. In completing a work sheet, why if it is correctly done, do you have to get the same net income in two different places?

3. Why is a work sheet called an analytical statement? Sometimes it is called a "bookkeeper's scratchpad." Can you explain how this title is significant?

CHAPTER IX

1. Could you make an income statement and balance sheet without doing a work sheet first? What would be the advantages? The disadvantages?

2. Why do you think the balance sheet was first introduced to you in account form? Why is a change now made to report form?

3. Which of the amounts on the balance sheet is different from the one listed under the same name in the balance sheet columns of the work sheet? Why is it different? Can you explain how this one change is the ultimate goal of all the work you have done up to this point?

CHAPTER X

1. What is a fiscal period? Is it always the same length of time for every business? Could it be less than a year? Could it be longer than a year? Why or why not?

2. Why is it necessary to close out the income and expense accounts? Why are the A L & P accounts left open?

3. Income and Expense accounts are sometimes called "temporary" accounts while Assets are called "real" accounts. Can you explain how these terms may have come into use?

4. Compare the Income and Expense Summary Account with the Income and Expense columns of a work sheet. Do you see any significance in this comparison?

5. Explain why there must always be three closing entries.

6. Which of the three will always be the same in form? Why? Which may differ? Why?

7. Why does a ledger have to be closed, balanced, and ruled?

8. Explain the bookkeeping cycle.

9. What is the last step in this cycle and why is it so important?

10. Picture an Income and Expense Summary Account after closing entries have been made and posted. What will you find on the first line of the debit side? on the first line of the credit side? Where will you find the amount of the net income? If there were a net loss instead, where would you find it?

This set of questions takes the student through an entire bookkeeping cycle. If there is no real understanding of why this work has been done, the next chapters become difficult or even incomprehensible to some of the students. I hope that these questions encourage them to delve into the whys and wherefores and not to depend entirely on sheer memory.

PRECEDING PAGES MISSING

*20. How do natural pearls differ from cultured pearls? Explain using your own words.

21. Prepare a report on the silkworm. May use ref. books in school library.

22. Several students may work on their project of raising silkworms. Keep daily chart on silkworms: Report findings to class.

23. Prepare a report on the bamboo plant. Use library reference books.

24. Japan is said to be a leading industrial country of Asia. Why then would 2/3 of Japan be covered by dense forests.

*25. T or F - Japan imports over 3/4 of the coal she uses from the U.S.

26. Draw a diagram dipicting the type of dress worn by the Japanese men and women.

27. What points of courtesy or etiquette might Americans learn from the Japanese?

*28. Compare or contrast: Japanese writing with that used in America.

29. Look up for the class the Japanese way of writing the numbers 1-20. (using a library reference book)

*30. In what year was Christianity brought to Japan?

31. Compare Japanese festivals and holidays with the festivals and holidays celebrated in New Orleans.

32. How would an American sports fan feel in Japan?

33. Pretend that you have spent some time going to school in Japan. Write a letter to your friend in Manitowoc telling him about your school day in Japan.

*34. What factors (Geo.) help to make Japan, one of the most important industrial countries in Asia?

35. Draw a products map of Japan; plotting major industrial cities and their products.

*36. If you were traveling to Japan, what products would you want to buy? Give reasons for your choices.

37. Prepare an outline to show why in 1965, Japan is the leading shipbuilding nation of the world.

*38. Explain in your own words why rail travel is so expensive in Japan.

*39. Only 1/4 of the Japanese homes have television sets. Do you think that this fact prevents them from being as well informed or as well educated as Americans? Why or why not?

40. From what country did Japan's 1st settlers come?

41. Why did the Japanese emperor order the European traders and missionaries out of Japan?

42. Do you think Commodore Perry's presence in Tokyo Bay was a good thing? Why or why not?

43. What did Japan accomplish by engaging in 2 World Wars?

44. Do you think General MacArthur really helped the Japanese people? Why or why not?

45. Draw up a program which would help to relieve or eliminate Japan's 3 main problems.

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BOOKKEEPING: SENIOR HIGH SCHOOL

In the introduction to this project the teacher points out the need for students to understand the "why" in bookkeeping rather than to follow blindly a proscribed procedure. She has composed questions that stress this kind of understanding. The questions appear to deal with important subject matter and to be well-phrased.

The level of thinking on each question can be determined with certainty only by examining the information on the subject of the questions as presented in the textbook. If the text tells why something is true and then a question asks why is it true, the student need only remember. However, many of these questions appear to require the students to make new comparisons or find new relationships that are not in the book. For example in Question 3 of Chapter I, the book certainly defines "net" and "gross" income but does not make the point that one is always smaller.

The great majority of the questions above the memory level appear to be in the category of interpretation. Question 4 in Chaper III and Question 2 in Chaper VI require egaluation. Question 3 in Chapter III could be made more evaluative by having the students decide which of the two procedures is best and why. There are no clear-out synthesis questions, but Question 3 of Chapter IV leans in the direction of creativity.

The procedure for writing these questions is significant. Apparently the teacher mentally surveyed each chapter with the idea of finding opportunities for questions. This approach can yield worthwhile results as demonstrated in this case. However, there are two weaknesses. First, the choice of subject matter to use is haphazard. The most important ideas often do not get sufficient emphasis in comparison to less important subject matter which happens to lend itself to questions. Second, it is difficult

PRECEDING PAGES MISSING

Pottery, lacquer ware, beautiful dishes, vases and glassware made in Japan find ready buyers in other countries of the world.

Modern chemical plants are found in many Japanese cities. Here trained workers make fertilizers, drugs, paints, plastics, and other valuable chemicals products. Most of these manufactured products depend on imported raw materials.

The growth of Japanese industry is due in part to the electric power that the fast mountain streams produce. During the winter these streams have very little water. Until the snow melts in spring, the electric plants use coal to make steam to produce electric power. The power plants are near factories and big cities.

The manufacture of metal goods is Japan's leading industry. Japan began to expand her metal industry after World War II with new and better plants. Today Japan ranks with the six leading iron and steel producing countries of the world. All her machinery in her own new and modern factories is new. Japan's iron and steel products include automobiles, trucks, buses, industrial machinery, and heavy railroad equipment.

The shipbuilding industry in Japan is her biggest and most important industry. Japan leads the world in shipbuilding. Since 1954, the total number of large ocean vessels built and launched in Japan has steadily increased.

Today, 1965, Japan is the leading shipbuilding nation of the world. How can this country lead the world's shipbuilders? There are many reasons why Japan leads in shipbuilding. The Japanese workmen do excellent work, their completion of ships (time needed to build a ship) and their building costs are the lowest in the world. This attracts ship buyers from many countries. The United States, Great Britain, Norway, and Greece are several of Japan's very good ship buying customers. Some reasons why Japan can build large ocean going vessels, 50,000 ton and over inspite of the fact that Japan imports most of her building materials are:

1. The Japanese shipyard worker earns $1 an hour wage; he works a six day, forty-two hour week. (American shipyard workers earn $3.12)
2. The cost of buying a ship on credit is more easily secured in Japan. (Most big ships--commerical trade vessels) are financed with 20% cash supplied by the owner and the rest of the money loaned by the bank. The bank loan draws interest (money paid for using money) and the borrower must pay the loan and the interest. In Japan, the government bank finances the ships built for the world market at terms favoring the ship buyer.
3. Another important fact ship buyers appreciate is the speed with which ships are built. It takes six months to have a ship built in the United States. The Japanese shipyards are able to build large ocean vessels in three months. The Japanese shipbuilders have discovered that you can build many parts of the ship at the same time and then, when all the parts are ready, put the ship together at one time. This is a time saving discovery. In other shipyards of the world, the ship is built section by section and put together very slowly. To further help the Japanese industry, Japan's ship designers work. These engineers discovered that certain

parts of a ship can be the same size. This makes it possible to always have these parts ready.

4. The cost of making steel, even at import costs, is much lower than the cost of steel in other countries. This is a major fact which supports Japan's shipyard boom.

Note to teachers: For further information to expand these concepts, check Newsweek, February 15, 1965, pp. 74-75 for a more extensive treatment of this topic in current economics.

Transportation in Japan

Japanese people often ride bicycles to travel from place to place. In large cities, buses, streetcars, and taxis help people travel from place to place. Broad highways and well-paved streets are part of the Japanese cities and towns; narrow dirt roads lead to the farm villages. These roads become very muddy and hard to travel during the winter. These village roads are crowded with people who carry vegetables and firewood to market.

Buses bring school boys and girls to places of interest in Japan. Railroads carry people and freight across the islands of Japan. Some thirteen hundred miles of railroad track connect the four main Japanese Islands. The railroads connect all the important cities. Railroads cost money becasuse of the many tunnels which must be built through the mountains. Bridges must be built across rivers and streams which flow down the mountainsides. In 1959, Japan opened an underwater tunnel more than 11,000 feet long. This tunnel connects the islands of Honshu and Kyushu. This tunnel is the second longest in the world.

Boats are the main type of transportation in an island country. This is very true of Japan. Goods exported from Japan and imported (brought in from other countries) are carried by boats using Japan's many harbors and ports. Flat bottomed boats carry goods on canals in the cities.

Air travel is becoming more common but this kind of travel is still too costly for most Japanese travelers. Airplanes fly into the airports of Japan from all over the world. Passengers and freight come into Tokyo, Japan's largest city, on polar flights from Anchorage, Alaska, to Denmark.

Kinds of Communication

All the large cities and towns in Japan have telephones. Most of these telephones are used for business. Most Japanese homes have a radio. One-fourth of the homes have television sets. More than 24 million newspapers are sold everyday.

Problems of Japan

Japan has a population problem. She is the fifth largest country in the world. Only China, India, Russia, and the United States have more people. On the islands where the Japanese people live, 650 people live in each square mile. The total population of Japan was 93 million persons according to the 1960 census. A population rise brings transportation problems. Trains are over crowded; large cities have traffic problems.

With one-sixth of her land suited for farming, these farm lands must supply food for more people than any other country in the world. Japan is able to produce four-fifths of her food. The remaining foods are brought in from other countries.

Industry's growth also takes away land once used for food production. This means that Japan's farmlands must raise larger crops on the remaining farm lands, or Japan must import more food. To pay for the food imported, Japan's industry must expend--this will reduce Japan's farm lands more. The food supply problem of Japan's people is closely related to Japan's trading problem. Japan produces enough tea, fruits, and vegetables for her people, but wheat and rice crops are never adequate. Japan imports these foods from other countries. To pay for these imports, Japan must export the extra fish which are caught and much of the manufactured goods.

Japan must also import coal, iron and cotton which are used in her factories. Japan exports the finished products. This buying and selling is called trade.

Before World War II, Japan had added other countries to her empire. These countries: Manchuria, Korea, Formosa, Sakhalin Island, and the Kurile Islands helped supply Japan's needs. Rice, sugar, cotton, soybeans, iron ore, coal, and fish come from her own empire. After World War II, Japan lost these territories. No longer could Japan supply her own needs. Since World War II, Japan has depended heavily on imports. This dependence on imports helped Japan to recover economically. Japan has an active trade with many countries in Asia and Europe. One of the largest consumer's of Japan's exports is the United States. Japan's future as an important world power depends on her continued trade with the other nations of the world.

*Test Questions

New Orleans

*1. Name the four flags which New Orleans history claims.

*2. Explain in your own words why New Orleans location has made it an important trading port.

3. Draw a picture which will describe and explain New Orleans' title the "City Care Forgot".

*4. Explain in your own words how and why New Orleans received the nickname "The Crescent City".

5. Explain in your own words how a leeve works.

6. Compare or contrast the Business District of New Orleans to that of your own city.

*7. Describe the influence which the Creoles had on customs in New Orleans.

8. Compare or contrast the export trade of New Orleans with that of your city.

9. In your own words, explain how the International Trade Mart and International House can help improve trade.

*10. Compare New Orleans with your city as to:
Size
Population
Location
Number of facturis.
Number of schools

11. On a map, trace the route you would have to follow if you were flying from your city to Moisant International Airport in New Orleans.

12. Class Project: Describe New Orleans' Mardi Gras by drawing a wall mural dipicting this event.

*13. Who founded New Orleans? When?

*14. Why did Bienville select the piece of land on the curve of the river?

*15. What caused France to cede New Orleans to Spain after the French and Indian War?

16. How did the emigration of 1755 help to swell Louisiana's population?

*17. Quote the price at which Napoleon sold the Louisiana Territory to the U.S.

*18. Do you feel this price was too much considering all the U.S. was getting? Explain why or why not?

*19. In what year did Louisiana join the Union?

Questions on Japan.

*1. Japan is said to be a country of many islands. Explain in your own words why this is or is not true.

2. Name and explain in your own words how the 3 forces of nature have changed Japan's surface.

3. Contrast in a paragraph (using your own words) how a different force of nature has affected the surface of your state.

4. The peak of Mt. Fuji is covered with snow all year round. Explain why the snow on this peak does not melt.

5. Name and locate on a map Tokyo and the 3 important southern islands of Japan.

*6. Define in your own words: Monsoon: Typhoon:

*7. Compare the spring in Japan with that of New Orleans. With the spring in your own city.

8. How does Japan's location affect her cherry trees?

*9. Explain what is meant by natural resources in your own words.

10. Draw up a chart comparing the natural resources of Japan and New Orleans.

*11. Land is said to be an important resource to the people of Japan. Explain why you agree or disagree with the above statement.

*12. What is the occupation of more than half of the Japanese people?

*13. Name the most common food of the Japanese people. Why is rice so valuable to them?

*14. Explain to a boy in Manitowoc how a Japanese farmer raised rice on a rice paddy.

15. Draw a picture of a Japanese rice paddy.

16. Describe or illustrate what is done with the tea plants grown in Japan.

*17. What foods compose the diet (main) of the Japanese family?

18. Describe deep sea fishing as carried on by the Japanese fishermen.

19. In your own words, account for the fact that Japan catches 1/7 of the world's fish.

PRECEDING PAGES MISSING

The Doll Festival is celebrated on March 3. On this day, young Japanese girls entertain their friends and display dolls.

On May 5, the boys have their Boys' Festival. On this day, the boys display dolls which represent ancient Japanese heroes and warriors.

The Bon Festival or Feast of Lanterns is held in mid July. On this day, the people of the Buddhist faith honor their ancestors. The Buddhists believe that the spirits of their relatives who have died pay them a visit on these three days; and, the lanterns will light their ways.

The Seven-Five-Three Festival is celebrated on November 13. On this day, all Japanese children, ages 7, 5, and 3 dress up in their best clothes. Mothers and fathers take these children to express their thanks that their children have reached these ages.

Recreation and sports are very popular. Baseball, Semo, (a special kind of Japanese wrestling which pushes the opponent out of the ring), Judo, a sport which hurls the opponent to the ground, and swimming have made Japan famous in the sports world. The Japanese swimmers are among the best in the world.

A school child in Japan follows a class program much like ours. The elementary school day begins at 8:00 A.M. The school week has five and one-half school days. The school day ends every afternoon at 3:00 P.M. The Japanese school year begins in April, not in September like our school year. The Japanese students have three long vacations. Students sometimes receive assignments to complete during vacation. One of these projects might be to keep a weather diary, or collect butterflies, shells, or flowers. During the school year, the Japanese students study reading, arithmetic, geography, and nature. In these classes, pencils and ball point pens are used. In penmanship class, however, something different happens.[1]

> "On their desks, the students place fine-tipped brushes, paper, and small black sticks of dried ink. The students rub these sticks in little containers of water to make ink. Then the students begin to copy their lessons. With careful brush strokes, they paint picturelike symbols. Each of these stands for a separate word or idea.

After a noon lunch, classes resume around 1:00 p.m. After dinner, the students study the Japanese language using the English alphabet.

After six years in an elementary school, the Japanese child enters a junior high school (grades 7, 8, and 9) and follows a similar course of study. When a Japanese student reaches the age of 15 years, he no longer is required to go to school. However, about half of the students who finish junior high school in Japan, continue their education in high school. Japanese high schools are very crowded; so to enter these schools, students must pass difficult examinations.

[1] Pitts pp. 115-116

Early Japanese History

Thousands of years ago, white people lived on the islands of Japan. These people made clothes from tree bark and used crude stone weapons and tools. These people made their living through hunting and fishing.

As time passed, various groups of people came to the islands from the Asian mainland. In the first century A.D., the islands of Japan were invaded by yellow-skinned people. These people migrated to Japan for centuries. As they invaded southwestern Japan, they pushed northward and settled in many villages. These yellow skinned people, who came from Korea, grew rice and raised cattle. Modern Japan traces her ancestors to these invaders.

Japan also learned from her neighbor China. In 552 A.D., a Korean missionary brought a new religion called Buddhism to Japan. Soon other scholars, merchants, and craftsmen came to Japan from China and Korea. Groups of Japanese went to China to study government, art, and literature. For nearly three hundred years, the leaders of Japan tried to make Japan a "Little China".

In the mid-sixteenth century, European missionaries and traders came to Japan. These Europeans brought Christianity to the people. The leaders feared these Europeans; they were afraid the missionaries and traders might conquer Japan. The leaders ordered the foreigners to leave the country in the seventeenth century. Japan allowed no European trade and forced the Japanese to give up Christianity. For two hundred years, Japan lived apart from the rest of the world. The Japanese rulers had complete control over the people. These years gave Japan a long period of peace. During this time, the Japanese people developed their great skills as artists and craftsmen.

In 1853, Commodore Mathew C. Perry steamed into Tokyo Bay. His presence made the Japanese rulers become confused and afraid. The Japanese rulers knew that their firearms were not equal to the guns mounted on the ships. The Japanese leaders slowly realised Perry was sent to establish friendly relations between Japan and the United States.

In 1854, Japan signed a treaty with the United States. This treaty opened two of Japan's ports to United States trade. Soon Japan signed similar treaties with other countries. Japan opened her doors to the world.

Late in the nineteenth century, changes took place in Japan. The Emperor forced some military rulers out of government because they signed treaties which allowed Japan to trade with other countries. The Emperor then took full power. He moved the capital from Kyato to Edo. The Emperor, Emperor Meiji, named his new capital city Tokyo. He also sent scholars and statesmen to study in western countries to bring back new ideas to modernize Japan.

The new Japanese government ordered the building of railroads new business factories, and new schools. This government had a new constitution which gave the people a more democratic form of government.

Japan became a world power through two wars. In a war with China and another war with Russia, Japan gained Formosa and territory in Manchuria. In 1910, Japan added Korea. Japan, after World War I, won territory in China and some islands in the Pacific Ocean. In 1919, Japan was one of the world's greatest military and industrial countries. By 1941, Japan's military leaders decided they were ready to wage war with the United States.

On December 7, 1941,[2] Japan made a surprise attack on a large American Naval Base, Pearl Harbor, in Hawaii. After this attack, the United States, Great Britain, China, and other countries formed an alliance to fight against Japan. During the first year of the war, the Japanese army, navy, and air force won many victories. The United States navy, however, defeated the Japanese fleet in two important sea battles in 1942. After these battles, Japan met defeat after defeat on land, at sea, and in the air for almost three years. Then in August 1945, the U.S. dropped two atomic bombs on cities in Japan. A month later, on September 2, the Japanese government surrendered unconditionally. General Douglas MacArthur was appointed Supreme Commander for the Allied Powers to accept the surrender.

The American soldiers and some British troops under the command of General MacArthur, began the task of rebuilding the defeated country. They established a democratic form of government in Japan. A new constitution, which gave the people new rights and freedoms, was adopted. During these years of occupation, the Japanese rebuilt their damaged cities and factories; Japan began to trade with other countries. In 1951, the Japanese signed a peace treaty with the United States and forty-seven other countries. By this treaty, Japan is confined to its four main islands and the smaller islands nearby.

Today, modern Japan is again an independent country. She is a member of the United Nations and its Security Council. Her people are working with other free nations toward maintaining world peace.

Japan's Manufacturing

Japan is one of the most important industrial countries in Asia. One out of four Japanese workers earns a living in industry. Many of these workers are employed in large modern factories. Thousands of other workers manufacture goods in small home workshops. Manufactured articles from Japan's factories and workshops are exported to many countries. The sale of these manufactured goods to other countries is the way Japan earns money to pay for the food and raw materials she must import.

Japan's industrial center stretches from Tokyo to the city of Nagoya; the area continues around the inland sea on the islands of Honshu and Shikoku. Kyushu's industrial center begins at Yawata, a port city on the inland sea to the city of Nagasaki. This area is the home of Japan's many large factories, mills, shipyards and mines. All of Japan's large cities are in this industrial region. Some of these cities have excellent deep harbors in which ships from other countries sail. These ships bring large quantities of raw materials for Japan's factories. Other ships carry products to foreign markets.

[2] Pitts p. 144 ff.

Japan's Manufacturing Center

Japan's manufacturing cities are located in the industrial belt. Major centers of industry include Tokyo, Yokohama, Osaka, Kobe, Nagoya, and the island city of Kyoto. Each of the major cities is an industrial capital.

The capital city of Japan, Tokyo, has a population of ten million people. It is one of the largest cities in the world and has many recently rebuilt buildings. Much of the city, destroyed by the fire, earthquake, and tidal wave of 1923 had to be rebuilt a second time after World War II.

Toyko is described as the city having more neon lights, more movie theatres, more people, cars and more noise than any other city in the world. Factories, apartments, and homes crowd the city. Automobiles, taxis, and buses fill her crowded streets. Tokyo's city government has a governor and an assembly which meets four times a year to decide city laws, discuss and solve money problems, and tax levies. A highly trained police force, using radio cars and motorcycles, and a most modernly equipped fire department guarantee the welfare of Tokyo citizens.

Tokyo's factories produce medical instruments, radios, and electronic equipment, cameras, leather goods, bicycles, sewing machines, and many kinds of toys.

Osaka, Japan's second largest city, is the textile center of Japan. Factories which make machines for spinning and weaving cloth and the textile mills themselves, which spin and weave cotton into thread and cloth, bring the people of Osaka their living.

Kobe, a city less than twenty miles from Osaka, is an important sea port city. Shipbuilding, manufacturing chemicals and plastics, and the electric industries provide work for people.

Nagoya, the third largest Japanese city, is the home of many pottery and porcelain factories. Some textiles are also manufactured.

Kyoto, the Buddhist center of Japan, is also the fourth largest city. Many vistors come to this city every year to visit the Buddhist temples and Shinto shrines.

Yokohama, Japan's fifth largest city, was Tokyo's sea port for many years. Tokyo Bay was too shallow for ocean going vessels.

Textiles are one of Japan's important manufactured products that she sells to other countries. Japan is a world leader in making rayon and other cloth. More than 700,000 Japanese workers earn their living making beautiful cotton, silk, woolen and synthetic fabrics for use in Japan and the world. Most of the raw cotton and wool used in the textile mills is imported.

Japan produces the greatest number of machines for making cloth in the world. She also leads the world in the manufacturing of sewing machines, cameras, and transistor radios.

PRECEDING PAGES MISSING

Another source of income is the tourist trade. The Mardi Gras is held on the Tuesday before Ash Wednesday. Many visitors from both the United States and Canada celebrate this event in New Orleans, while others come for her annual Sugar Bowl football classic, her Spring Fiesta, and her Cajun Piroque Derby.

To help the merchants engage in international trade, New Orleans has two important organizations--the International Trade Mart and the International House to do business.

Business men from many lands have a place to buy and sell their goods at the International Trade Mart. International House is a clearing house for world information and also is a club-like meeting place for persons who are interested in improving trade relations.

New Orleans in also an industrial city. Factories depend on nearby sources of petroleum, natural gas, sulfur, salt, lime, and wood for their raw materials. Cheap electricity and a large supply of fresh water, the two most important needs of modern industry are nearby.

The factories of New Orleans and its suburbs, more than nine hundred in number, have jobs for 45,000 persons. Aluminum, chemicals, building materials, ship building, and rocket boosters, are sent to all parts of the world as New Orleans works everyday.

Transportation And Communications

People who come to New Orleans on one of the seven railroads serving the city find themselves in the Union Passenger Terminal. A visitor who flies to New Orleans will find his plane landing at one of the cities three airports. Perhaps the plane lands at Moisant International Airport, which is the city's largest airport. Maybe, if our traveler is a businessman, his plane will land at the New Orleans Airport on Lake Pontchartrain.

A visitor who is driving to New Orleans can enter the city by crossing one of the three bridges which connect the city to the main land. The Greater New Orleans Bridge and the Lake Pontchartrain Causeray are direct links into the city; Huey L. Long Bridge is a bridge 9 miles west of the city also speeds traffic. A commercial asset is the Lake Pontchartrain Causeway a twenty-four mile long bridge which provides a short cut across the lake.

New Orleans' people are well informed citizens. Two daily newspapers, the Times-Picayune, the morning peper (which was named for the coin wich it originally cost--a picayune) and the States-Item, the afternoon daily paper keeps citizens well informed of world events. Fourteen radio stations and three commercial television stations give around the clock news service to the people who take the time to listen.

Cultural Aspects of New Orleans

The New Orleans Opera House Association presents six operas every year for public enjoyment. New Orleans also has a Jazz Club which presents concerts and sponsors a jazz museum in the French Quarter.

New Orleans is a city of many schools. Five universities, one college and one seminary called, "New Orleans Home." Some 93,000 students attend the city's public schools while 53,000 students attend New Orlean's private schools. The city counts 225 public, private, and parochial elementary and high schools to her credit.

Tourists In New Orleans

Tradition is strong in New Orleans; every year certain celebrations occur which are important to people all over the world. The Mardi Gras celebration begins ten days before Shrove Tuesday. This holiday features street parades, feasts and celebrations before Lent.

Easter, too, is the time of the Spring Fiesta when New Orleans celebrates its past. Guided tours of famous Old Homes in the French Quarter, homes in the Garden District, and nearby plantations bring memories of past splendor.

The New Year is celebrated with the Sugar Bowl Football Game. At this time, other sports events--especially tennis and basketball provide entertainment.

Tours of the French Quarter attract all visitors to the city. Restaurants, too, share in New Orleans' fame. The menus feature Creole cuisine, a blend of French and Spanish cooking which is delightfully different. Sea food specialties--fresh oysters, shrimp, crabs, pomano are the salt water delicacies so enjoyed by tourists.

Historical New Orleans

Jean Baptiste le Magne has the honor of founding New Orleans in 1718. The governor of the French colony, Louisiana, Seiur de Bienville selected a piece of land on the curve of the river because this piece of land was protected from hurricanes and tidal waves. This piece of land, called New Orleans, gave honor to the French regent, Philippe, the Duke of Orleans who ruled France at the time. When colonial Louisiana brought no money to France, the number of settlers declined. After the French-Indian War, France ceded New Orleans and all Louisiana west of the Mississippi were given to England. (Peace of Paris, 1763)

Emigration in 1755 swelled Louisiana's population. Driven by the English from their homes in Arcadia, Nova Scotia, and Canada, several thousand Frenchmen settled in Southern Louisiana. Many persons who live in the parishes of the Gulf area, southwest of New Orleans, trace their family history to 1755.

The English colonists in the New World found a powerful ally in Spain at the time of the American colonies. Spanish-English relations were complicated by a war which began in 1779 between Spain and England. To add to England's colonial problem, Governor Bernardo de Galvez, the Spanish governor of Louisiana, captured Baton Rouge and other Southern English cities in 1781. After Galvez's battles, all the land, which today belongs to the state of Louisiana, was under the Spanish flag. Spanish rulers held this land for twenty-one years till the treaty of San Ildefonso, 1801, when Spain gave Louisiana back to France. France held the territory for two years, and, in 1803, the Emperor of France, Napoleon sold the Louisiana Territory to the United States for fifteen million dollars.

Problems still faced Louisiana, and during the War of 1812, the Creole State, as Louisiana became known, did not like invaders from the North. So in April of 1812, Louisiana became the eighteenth state to join the Union; New Orleans was chosen as the first capitol city of the state.

JAPAN

Geography

Japan is a country built of many islands. Located off the coast of China, Japan is separated from Asia by the Sea of Japan to the West and the blue Pacific Ocean on the east. The many islands of Japan, if they were put together, would equal the land area of the state of California. No part of Japan is more than 100 miles from the sea.

Many millions of years ago, the earth's surface cracked because of deep movements inside the earth. Layers of rock at the bottom of the ocean cracked by this shifting movement and pushed themselves up. Some of these peaks and ridges forced themselves above the water's surface. So Japan's land was born.

Over the centuries the three forces of nature: earthquakes, volcanoes, and mountain streams changed Japan's surface. Earthquakes forced some parts of the islands to rise and other parts to sink. Volcanoes erupted in some places piling up masses of lava and ashes to form new mountains. These mountains stand out from the jagged peaks around them because they have perfect shaped cones. Swift-flowing mountain streams washed much soil and loose rock down the slopes. The valleys which received this soil, and the coastal area, give the people of Japan rich, fertile soil. These regions are the plains on which the Japanese people live.

The volcanoes of Japan are no longer very active. Many of the burnt out volcanoes form Japan's mountain ranges. The few active volcanoes which arrupt, throw out smoke and lava (melted rock). The mountain range near Tokyo is one of Japan's largest and highest ranges. Mt. Fuji, Japan's highest peak, is in this group. This extinct volcano last erupted in 1707. This mountain is so high that its peak is covered with snow all year long -- except in the middle of summer.

Japan has very little flat land. Most of the mountains slope downward to the sea. Long valleys reach down the mountains like fingers. The hundreds of small streams do the same thing so large rivers are few in Japan. Japan's coastline is rocky and has many small harbors where fishing boats bring the day's catch.

Japan has earthquakes almost every day. These earthquakes follow the same pattern as Japan's volcanoes do. The location of the volcanoes and earthquake pattern forms part of the Pacific Volcano System we some times call the circle of fire.

Most of Japan's people live on four islands. The three important southern islands are Kyushu, Shikoku, and Honshu which are separated by the Inland Sea. Honshu, the largest island, is the home of Tokyo, Japan's capital city. Hokkaido, the fourth largest island has a cold climate so not as many people live on this island.

Climate

Japan's southern and central regions have a monsoon climate. A monsoon is a wind which blows from the ocean to the land during the summer. In winter this wind blows from the land to the water.

In early March, spring brings warm, sunny days to Japan. Her famous cherry trees as well as flowers bloom. Summer in Japan is hot and wet. (Humid means hot and wet). As the warm air rises, it expands and cools. The moisture (water drops) then falls as rain--this is the reason why it rains all summer in Japan.

Early in fall, dark storm clouds cover southern and southeastern Japan. This is the time of the typhoons. A typhoon is a terrible storm which sweeps in from the Pacific, bringing strong, high winds which do much damage.

Winter on Hokkaido and northwestern Honshu are cold and snowy. In some places, there are only 150 or less days having no cold and frost.

How Do the People of Japan Live

Industry and trade both depend on natural resources. Natural resources are things which nature provides for people's use. The people of Japan use everything in their country to make a living.

Land, the most important natural resource, is scarce. Because of the mountains, only one of every six acres of land can be farmed. These farms are in mountain valleys and on the plains near the coasts. More than half of the Japanese people are farmers who must raise enough food for ninety-three million people. Today, Japan grows most of her own food, importing some items to feed her people.

Rice, the most common food of the people, is Japan's most important crop. More food is made from one acre of rice than from any other food. The rice farmer starts his seeds in late May planting his seeds in seed beds or flax boxes. Within a week, the rice seedlings are moved to the paddy. The paddy is a small field surrounded by a low dirt wall. This wall or dike keeps the water in the field or paddy. The farmers walk on the tops of the dikes to reach their fields.

After the farmer has transplanted his seedlings, he prepares his field and floods his paddy with two or three inches of water. Rice plants must grow in water. Everybody helps plant and weed the paddy and see that the young plants receive the right amount of water, Planting, fertilizing, and weeding the paddy is done by hand. After the rice is cut and dried, it is threshed by hand. The straw provides roofs and mats for his home and sandals for his feet. The rice plants' roots give him fuel to cook his food.

Tea also grows in Japan. The hillsides of Japan are well drained as the water flows quickly off her slopes. Long rows of tea plants on the hillsides make tea-leaf gathering easy. These plants are trimmed annually. Women and children help gather the new, young leaves which begin to grow in April. These leaves give the best tea. The leaves are picked from the plants many times during the summer months. After the leaves are picked, they are steamed and dried; then the tea leaves are ready to use. Tea is the most popular drink of the Japanese people.

Rice and fish is the main diet of the Japanese people. The ocean waters and the fresh water lakes around and in Japan have a plentiful supply of fish. Fish easily caught by a Japanese coastal fisherman may include sardines, tuna, herring, mackeral, and cod. Shrimp, crab, lobster, and octopus are also gathered here. The fishing industry also includes drying and canning fish. Most of Japan's fish are used in Japan; some of the fish which are canned and frozen are sold to other countries of the world.

Most Japanese fishermen live in small coastal villages. A Japanese fisherman usually sails four to seven miles to catch his fish. His fish are caught in nets and he returns to shore every day with his catch. He may own his own motorboat or he may have a boat moved by sails or oars. The village fisherman's boat is small and frail. His catch could be sardines, herring, or mackeral. If he is more adventurous, the village fisherman may trap long-armed octupuses in pots shaped like flower jars. The village fishermen catch about seven-tenths of Japan's fish.

Deep-sea fishing is done in company owned fleets. These fishing companies hire many men. These fleets are at sea four or five months before they return home. Sometimes they sail up the coast of Alaska looking for salmon, tuna, and whales. These fleets bring back three tenths of Japan's fish. The fleet uses huge nets to catch fish. Every fleet has its factory ship. Every day, the fleet's catch is cleaned and canned on board the ship. Every ship in the fleet has a refrigerator in which tuna and other fish are stored.

Japan, the leading fishing nation of the world, catches one-seventh of the worlds fish. This is true for five reasons.

1. The seas around Japan contain some of the worlds best fishing grounds.
2. Japanese people catch fish to take the place of meat.
3. Because Japan has little land for cattle grazing, meat is scarce.
4. Fish are an important source of oil and fertilizer.
5. When Japan sells fish to other countries, she earns money to buy things she can not produce herself.

Pearl growing is a most important industry in Japan. Most of the world's pearls come from the pearl farms of Ise Bay near Nagoya. Pearls are formed when a grain of sand enters the shell of a living oyster. The oyster covers this grain of sand with many layers of a milky fluid, called mother of pearl, which finally hardens. These pearls, called natural pearls, are very rare.

In 1894, the Japanese found a way to grow pearls. This process is still used today. Divers, many of whom are young women, gather three year old oysters from the ocean floor. A bead (grain of sand) is placed inside the shell of the live oyster. Then the oysters are placed in cages and are returned to the ocean floor. It takes nearly seventeen years for an oyster to cover these beads with many layers of milky fluid. Pearls grown this way are called cultured pearls. When these pearls are sold, they are sold according to size, color, and quality. Many buyers from all over the world buy pearls for jewelry in Japan.

Japan is the home of the silk worm. These worms feed on mulberry leaves and live on straw-covered trays in farmhouses. Most of the world's silk comes from Japan's silk worm.

The silkworm is hatched from an egg. A month after he is hatched, the silkworm spins a cocoon, a small soft white ball. The silkworm's cocoon is spun of fine silk fibers which come from his mouth. This sticky fluid hardens into long thread-like fibers which the silkworm winds around his body to form his house or cocoon.

The cocoon is sold to the factory where it is sorted according to color. At the factory, the cocoons are soaked in warm water to loosen the gummy fluids holding the threads (fibers) together. The fibers of four or five cocoons are unwound and twisted together to form a silk thread. A stronger thread is made by combining two or three silk threads. This is called raw silk. Raw silk is dyed and then the threads are ready for weaving into cloth.

Japan, a leading industrial country of Asia, needs natural resources. Dense forests cover two-thirds of Japan's land. Evergreen trees, maple and oak trees supply lumber to build houses and to make furniture. Firewood and charcoal for heating homes and cooking; wood pulp for paper and rayon are supplied by the forests. Inspite of wise, careful use of the forests, Japan must import some lumber and timber. The Japanese have substituted the tall rustling bamboo plant growing in abundant groves all over Japan for lumber building materials whereever they can.

Coal, iron ore, petroleum, and electricity are also needed if industry is to succeed. Many tons of coal are used every year. The several small coal fields of Japan produce only a small amount of the quality coal needed in Japan's metal industries. Every year Japan imports millions of tons of coking coal. She buys three-fourths of the coal from the United States. Japan's iron ore deposits are also quite small. Japan's iron mines cannot supply enough ore so large quantities of ore from Malaya, the Philippine Islands, India, and the United States are purchased for Japan's factories. It takes the Japanese oil wells one year to produce as much oil as the United States produces in one month. More than nine-tenths of Japan's oil must be imported. Japan's mineral deposits of copper, chromium, gold, silver, and zinc supply her own needs.

The many mountain rivers and streams furnish plenty of water power for cheap electric power.

Japan and Her People

The people in Japan look very much alike. Nearly everyone has black or brown hair; slanted sparkling eyes, and short stature--barely five feet for women and just over five feet for the men characterize the Japanese nation. Today, the clothing of Japan is very similar to the clothes worn in the United States. Businessmen wear suits, white shirts, and neckties. Office girls wear dresses, suits, skirts and blouses. Housewives dress in the country's colorful robes which reach to their ankles. These robes called kimonos have long, flowing sleeves and wide sashes. With this dress, the ladies wear sandals. The kimono is often worn also by men when they are at home because the kimono is a comfortable garment.

Manners and courtesy, or etiquette, is very important in Japan. Japanese people are known all over the world for their fine manners. Bowing is the polite way to greet someone in Japan. The deeper the bow, (that is the lower a person's body bends and the more times you repeat this action) the more respect a person shows in his greeting. The well-mannered Japanese person tries always to say kind things about his neighbor. He also tries not to show his feelings when he is angry, excited, or unhappy. The Japanese person, when he talks about himself, has nothing good to say about himself.

Japanese writing is very different from ours. Picture-like symbols on a page stand for whole words or ideas. (ex. means man). The name that the Japanese give these picture words is Kanji, or Chinese Characters because the people borrowed these characters from China many years ago. In Japanese writing, 5000 different Kanji are commonly used. Besides the Kanji symbols, which represent words, the Japanese have symbols representing sounds much as the letters of our alphabet do. (ex. stands for the sound "o"). These sound symbols or kana are combined to spell out different words. The Japanese writing does not go across the page in straight lines; they place the words under each other in columns.

ex. "Arigato gozaimasu" means Thank You.
"Sayonara" means Farewell.

The Japanese people may worship Budda. If they do, they are called Buddhists. Some may follow the Shinto teachings. These people call themselves Shintoists. Some people are both Buddhists and Shintoists. Other Japanese may be Christians. Christianity was brought to Japan in 1549. Today more than 500,000 Japanese are Christians.

The Japanese people like festivals. The New Year's Festival is celebrated in January. At this time, the Japanese people exchange presents and try to pay all their bills. This festival officially ends on January 3.

South America (continued) PRECEDING PAGES MISSING

39. Corn, cotton, and coffee grow well in the Yungas because ____________ and ______________. Page 331

40. From what you know of the location of some South American cities, the wind and ocean currents, would you expect the rainfall of the following places to be: (a) light, 0-20"; (b) medium 20-60"; (c) heavy, over 60".

A. Antofagasta, Chile	H. Porto Alegre, Brazil
B. Manaus, Brazil	I. Buenaventura, Colombia
C. Lima, Peru	J. Georgetown, British Guiana
D. Buenos Aires, Argentina	
E. Comodoro Rivadavia, Argentina	
F. São Paulo, Brazil	
G. Belem, Brazil	

41. List the page number and paragraph number in the book which gives about the same information.

A. In the early 1900's the selva was the center of the rubber industry.
B. Less than half of the people of Brazil are Caucasiams, one third are mestizos, the rest are Negros and Indians.
C. The Altiplano is the heart of Bolivian life. It contains the mines, manufactures, and most of the inhabitants.
D. Southern Chile is a cold, wet region of little attractiveness and limited economic potential.
E. South of the southern tip of Chile is a belt made up of numerous low pressure areas, with unusually high barometric gradients, which produce very strong winds averaging over 30 M.P.H. These moving low pressure areas give a constant succession of storms for which the passage around the Horn has been renouned ever since its discovery, and farther northward give the lower part of Chile its westerly winds and immense rainfall.

F. Southern Chile has vast forest resources, but they are relatively unexploited.

42. Which of these are about the same: Underline the word which does not belong. What is different about the one? Why doesn't it fit?

A. llanero, gaucho, cowboy, guano
B. Fazenda, plantation, guebracho, estancia
C. pampero, westerlies, Trade winds, manioc
D. Matadore, llanos, Patagonia, Pampa
E. Cacao, manioc, guano, latex
F. llama, coca, alpaca, sheep
G. llanos, cacao, taqua, bananas
H. pampas, selvas, savannas, campos
I. pampas, Gran Chaco, selvas, llanos

43. What similarities are there between California and Middle Chile?

A. Some crops by irrigation
B. Some type of climate
C. Populated because of productivity and climate
D. Country's center of manufacturing and trade

South America (continued)

44. The far south of Chile is very similar to the western coast of the state of ______________

45. São Paulo and Santos are within 20 miles of each other near the Tropic of Capricorn, yet Sao Paulo is almost 10 degrees cooler than Santos. What, probably, is the cause of this?

46. The following questions are based on slides of South America (There are at least 2 pictures of most subjects. One half of the pictures were used while teaching the unit, the other one half when testing)
    A. What is picture about?
    B. What part of South America do you think it is?
    C. Why do you think so?

TRADING COMMUNITIES: FOURTH GRADE

The fourth-grade social studies is based on the Macmillan test Exploring Near and Far. The course is organized around type-regions. In each case an area in the United States is selected for study and then compared with a similar region elsewhere in the world.

In composing the unit on trading communities, this teacher spent much effort on adding to the information about New Orleans and Japan contained in the text. This was probably undertaken because the point was emphasized in the workshop that higher levels of thinking usually require use of other sources than the text. Textbooks explain so fully that they leave little opportunity for thinking above the memory level. In addition, texts often do not give sufficient emphases to functional ideas having explaining, classifying, or solving power.

A study of the supplementary subject matter presented in this unit reveals that the author has gathered a great amount of information - but that it is organized and presented in much the same manner as in a textbook. For example, the information on the first page on New Orleans is almost entirely descriptive rather than functional. With a few exceptions this tends to be true throughout the passage. The functional idea of the relationship between elements of geography and the ways people live and make a living does come out in a few places. The description of Japanese shipbuilding and the reasons why ships can be built cheaper in Japan is one other example of a functional idea. Beyond this, the subject matter does not paticularly assist the teacher in leading students to think on higher levels.

The questions at the end of the unit are about the best that could be composed on the basis of the subject matter. In one of the most common forms of question, the student is asked to present an idea "in his own words". The teacher probably considers these questions to be in the translation category. However, the original presentation of the information to the student is in language designed for his understanding; so the level of thinking is better classified as recall.

Another type of question commonly used in this unit calls upon the student to make comparisons. This is classified in the interpretation category. The organization of the unit lends itself to this kind of thinking, with the basic pattern to compare in some respect, a Japanese trading community with New Orleans, and to compare either of the trading communities with Manitowoc. Several questions ask for application thinking, such as making a map or looking up information on a topic. There is no effort to bring in analysis thinking. The last question on Japan is an excellent example of the synthesis category but probably too involved for fourth-grade students. There are five evaluation questions but no evidence that the students are prepared to deal with them properly.

This unit demonstrates the fact that additional subject matter does not necessarily help a teacher in leading students to higher forms of thinking. The subject matter must be of a certain kind and be presented in a certain manner. A description of better ways to treat subject matter is included later in this report.

NEW ORLEANS VS. JAPAN AS A TRADING COMMUNITY

Objectives:

1. To help pupils become familiar with and gain an understanding of life in a port city and of the activities that are carried on there.
2. To help the pupils gain an understanding of the likenesses and differences of trading and living in the cities of New Orleans and Japan.
3. To acquaint pupils with New Orleans history; it first belonged to France; then to Spain, and later on the French got it back and sold it to the United States.
4. To help pupils become familiar with New Orleans location on the Mississippi and with some of the things that go on at the mouth of the Mississippi.
5. To acquaint pupils with the work and trade carried on in New Orleans by means of ferryboats, freighters, and tankers.
6. To help pupils become familiar with some of the foods that are grown in Louisiana.
7. To help pupils understand that the growth of a city, and the trading that goes on in the city, depends upon how easily it can be reached by ships and trains.
8. To acquaint pupils with the importance of New Orleans as a trading center and as a site of interest.
9. To help pupils become familiar with Mardi Gras time in New Orleans.
10. To help pupils understand that fighting is a poor way to settle differences between people and countries.
11. To acquaint pupils with our Latin American neighbors to the south and our need to exchange goods with them.
12. To acquaint pupils with some of the different kinds of goods which are sent to New Orleans on ships from Latin America and from other countries.
13. To familiarize pupils with some of the many products the Japanese people make to sell to other countries.
14. To help pupils see the likenesses and differences between Japan and New Orleans.
15. To help pupils realize and understand that while some of the ways of the Japanese people differ from ours; people everywhere still try to live in the way that is best for their community.

New Orleans

America's "most interesting city" is the port city, New Orleans. Its history claims four flags: France, Spain, the Confederate Flag, and the Flag of the United States. One finds reminders of Old Europe and the Old South in New Orleans. Located near the mouth of the Mississippi River, New Orleans serves as an important trading port because most of the United States trade with Latin America flows through New Orleans. This city is the link connecting Atlantic Ocean trade with Mississippi River trade. New Orleans has been a trading center for 200 years.

New Orleans' citizens have earned their city's title, "The City Care Forgot." Business can always be laid aside as the people of New Orleans have a good time enjoying the food of their world-famous restaurants and the jazz bands which claim New Orleans as their birthplace.

As the Mississippi River lazily flows toward the Gulf of Mexico, the river passes New Orleans in an easterly direction which forms a giant curve. This gave New Orleans her nickname, "The Crescent City." The main part of New Orleans is wedged between the Mississippi River on the south and Lake Ponchartrain on the north. Because of its location, part of New Orleans is built below sea level. A heavy rain storm could easily flood this city which has little natural drainage. To prevent damage from floods, the city has built a large pumping system which can draw off nineteen billion gallons of water a day.

The land location of New Orleans below the levels of the Mississippi River and Lake Ponchartrain makes levees - walls which hold back the waters of the lake and river necessary to prevent floods. It is a common sight for a person standing at the base of a levee to see ships steaming up the Mississippi River above his head into the port of New Orleans, one hundred miles upstream.

New Orleans is divided into seven districts. The business district is located on Canal Street. As one walks north on Canal Street, one passes the cities largest department stores. The farther north the visitor walks, the street changes from a business district to a tree-shaded residential district. Canal Street ends in an area called the Cemeteries.

The oldest and most famous section of New Orleans in the French Quarter. This part of the city is kept as it was two hundred years ago when the first French and Spanish settlers lived here. Here, visitors will find two and three-story buildings whose balconies project out over the narrow streets. The iron grillwork on the balconies and around the flower-filled courtyard patios attract many artists and visitors.

The famous history site of New Orleans is Jackson Square in the heart of the French Quarter. St. Louis Cathedral and the Cabildo, the seat of government during the Spanish government of Louisiana are two shrines of New Orleans history maki days.

another section of the city, the Garden District was the home of the American settlers who came to New Orleans, Louisiana, in 1803 after the United States purchased this territory from France. Students of architecture will find some of the City's finest homes. Greek and other classic building combinations, as well as flower filled gardens which feature magnolia and live oak trees, delight the visitor.

Uptown New Orleans is the name given to the city around Audubon Park and the campuses of Tulane and Loyola Universities. Audubon Park, a land area of three hundred-fifteen acres, has a man-made hill which shows the children of this flat city what a hill looks like, a large zoo, a golf course, and a swimming pool.

New Orleans' city park has three golf courses, a swimming pool, the Isaac Delgado Museum of Art, the Municipal Stadium which seats 27,000 people, and 25 baseball diamonds on a 1,500 acre tract of land. The scenic lakefront area is north of the city park. A Motorist who follows the lakeshore drive will see Lake Pontchartrain on one side and a luxurious residential area on the other side.

New Orleans on the south side of the Mississippi is called Algiers. To reach Algiers, one must cross the Greater New Orleans Bridge, the only link to the rest of the city.

Today, New Orleans people are much like Americans across the United States. However, there is a small group of interesting people, the Creoles, who are special to New Orleans. These people, who call themselves Creoles, are descendants of the early French and Spanish settlers. These people had customs, a culture, a language, and an education which were very different from those of the pioneer Americans. These people, who, today, speak French at least as well as they speak English, have done much toward making New Orleans unusual among American cities. A small part of the today's population of New Orleans, the Creole takes part in the city's general life, but still follows many customs of his ancestors.

Non-Creoles of New Orleans show the influence of old customs. It is a common New Orleans custom today to visit the cemetery with one's family on November 1, All Saints Day, to honor the dead. A New Orleans citizen does not question this old Creole custom.

The Negro, too, has influenced New Orleans. One-third of New Orleans citizens are negroes whose jazz bands are famous. The jazz bands playing to and from the cemeteries are among New Orleans' local customs.

Foreign Trade is New Orleans' greatest income source. Two billion dollars worth of import and export goods flows through the Port of New Orleans every year. Steam ships travel regularly between New Orleans and the trade centers of the West Indies, Central America, the North American Atlantic Coast, and Europe. The ships leaving New Orleans carry cargoes of cotton, salt, grain, tobacco, sulfur, livestock, lumber, and manufactured goods. The manufactured goods include clothing, furniture, cigars, pipe tobacco, boots and shoes, and cottonseed oil. Ships carrying imports bring bananas, coffee, sugar, and petroleum. In values of export goods, New Orleans ranks second in the United States. Only New York City's export trade values exceed New Orleans'.

Section VI

A BASIC AND APPLIED RESEARCH PROPOSAL DESIGNED TO TEST HYPOTHESES ON THE TAXONOMY OF QUESTIONS

Part of the proposal reported on here contained plans to develop experiments to test the impact of the taxonomy of questions on teachers and students. Two of the objectives for this Small Grant S-168 read as follows:

> "To plan rigorous experiments to determine whether teachers who study the taxonomy offer more varied questions than teachers who do not use this tool."
>
> "To plan rigorous experiments to determine whether students exposed to a variety of thinking skills develop greater proficiency in these skills than students who have less practice."

With the consulant assistance of the University of Wisconsin Laboratory of Experimental Design a proposal based on those objectives was submitted in February 1965 to the Basic and Applied Research Program. In July 1965 the Bureau of Educational Research notified the Manitowoc Public Schools that the proposal was not accepted for funding. The proposal was rewritten in the light of the criticisms and resubmitted on September 1, 1965. Because it was written as a part of this Small Grant project it is included as the next portion of the report.

BASIC AND APPLIED RESEARCH PROPOSAL

Submitted to the U. S. Commissioner of Education
Under the Provisions of Public Law 531

Project Title: RELATIONSHIPS BETWEEN CERTAIN INSTRUCTIONAL QUESTIONING STRATEGIES AND LEVELS OF UNDERSTANDING OF CONCEPTS

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ABSTRACT

RELATIONSHIPS BETWEEN CERTAIN INSTRUCTIONAL QUESTIONING STRATEGIES AND LEVELS OF UNDERSTANDING OF CONCEPTS

Problem

The objective of the proposed study is to investigate relationships between questioning strategies used during classroom instruction and the level of understanding achieved by pupils. The level of understanding that is the criterion is called "application," which is defined as the ability to use previously studied material in new situations when there is no specific direction as to which material is relevant. The proposed study will attempt to discover those sequences and categories of instructional questions which are effective in inducing understanding at the application level in different subject matter fields.

The rationale for the questioning strategies and the criterion level of understanding is based on the cognitive Taxonomy of Educational Objectives (Bloom et al., 1956), as modified for classroom instruction (Sanders, 1965). By means of this rationale, it is possible to distinguish the kinds of questions used in instruction into different levels according to the degree of understanding required of the pupil. The development of the rationale for instructional questions was occasioned by what appeared to be a disturbing overemphasis on memory questions, those questions which ask the pupil to remember information but not to use it, both in instruction and in evaluation. The rationale and related investigations are attempts to raise the cognitive outcomes of classroom instruction from the memory level to the thinking level by means of the questions used during instruction.

Procedures

The relationships between the dependent variable (understanding at the application level) and the independent variables (questioning strategies during instruction) will be investigated by means of controlled classroom experiments. The experiments are to be conducted in a variety of subject matters and grade levels in order to ascertain those principles of the rationale that have general applicability and those principles that can apply only as modified for specific age levels and specific instructional topics. The experimental treatments will be carried out both by regular teachers and by project associates and will rely on instructional materials organized specially for the project.

The proposed study is of a two year duration. The first six months will be devoted to organization and informal tryout of experimental materials, and the remainder of the time will be devoted to conducting and analyzing the classroom experiments.

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Preface

CHANGES FROM RESEARCH PROPOSAL PREVIOUSLY SUBMITTED

A proposal, "The Relationship Between Classroom Questioning Strategies of Teachers and the Intellectual Growth of Students," was submitted to the Basic and Applied Research Branch of the U. S. Office of Education in February of this year. The attached proposal represents a substantial modification of the previous proposal. The major changes are as follows:

(1) The problem areas have been reduced from two to one. The current proposal concentrates on the study of pupil outcomes as affected by certain instructional strategies. Teacher questioning behavior as affected by in-service training is no longer a problem area considered in the proposal.

(2) The primary dependent variable in the current proposal is limited to understanding at the application level rather than understanding at all of the seven levels specified by the underlying rationale.

(3) The procedures in the current proposal involve only controlled experiments rather than both field observations and controlled experiments.

(4) The current proposal is for a two year duration instead of three.

PROBLEM

Of the elements that a teacher can control in order to affect the learning of pupils, problems and questions asked of pupils are among the most manipulable and important. Questions serve to gain attention of pupils, to insure some active approach toward learning, and to determine the ways in which the subject matter is perceived and handled. Under the assumption that questions are in fact an important, manipulable tool for teachers during instruction, there is a need for a rationale for the description, classification and use of questions. A rationale is provided for the classification and use of questions by the cognitive Taxonomy of Educational Objectives (Bloom el al., 1956), as modified for classroom use by Sanders (1965). The modification is referred to throughout this proposal as the "Taxonomy of Questions." (The term "questions" in the rationale is broadly defined to include any subject-matter-related exercise that calls for a response from a pupil; this includes problems and projects as well as interrogative statements.)

The problem to which this proposal addresses itself is whether or not questions manipulated according to the rationale of the "Taxonomy of Questions" produce different cognitive outcomes in pupils. The principal dependent variable will be the extent to which pupils apply previously studied concepts to new situations where there are no specific directions as to which concepts are most relevant or how they might best be applied.[1] This dependent variable is a level of understanding that is classified in the application category of the cognitive Taxonomy of Educational Objectives.

The independent variables in the proposed study will be different questioning strategies used to teach concepts that have a wide range of applicability. The questioning strategies to be compared will differ according to emphases placed on the use of certain categories of questions, namely, memory, translation, interpretation, and application (the categories of questions are defined briefly in the next section.)[2] A strategy that uses memory questions and teacher exposition exclusively will be compared with a strategy that uses interpretation and translation questions in addition to memory, and this strategy will in turn be compared with one that emphasizes application questions.

The search for relationships between the independent and dependent variables will take place by means of a group of classroom experiments conducted in different grade levels and subject matter fields.

Under the assumption that learning at a level which enables pupils to use major concepts correctly in different and new situations is a desirable cognitive outcome, any relationship discovered between this outcome and a manipulable variable can have important implications. The hypotheses underlying an instructional questioning strategy that is found to produce a greater degree of learning at the application level can suggest guidlines to educators for planning other units and instructional activities. Moreover, significant differences found among questioning strategies in this study would tend to add credibility to the rationale of the "Taxonomy of Questions." Failure to find significant differences among the experimental questioning strategies would cause doubt on the validity of the "Taxonomy of Questions" as a useful tool and would suggest a search for different manipulable variables that will have more of an effect on important criteria. If differences are found in some experiments but not in other experiments in other subject fields, the results would suggest that the taxonomy is not as comprehensive as once anticipated and would provide some guidlines for appropriate qualification of the rationale. Furthermore, results that vary among different subject matter fields and types of concepts would give some leads as to those characteristics that indicate which kinds of concepts best fit a certain questioning strategy.

---

[1] The nature of the term "concept" as used in this proposal is described in Appendix A.

[2] These four categories are equivalent to the first three major categories of "knowledge," "comprehension," and "application" in the cognitive Taxonomy of Educational Objectives.

RELATED RESEARCH

The complexity of thinking and its importance in education has led to several attempts, such as the noteworthy efforts of Thurstone (1938) and Guilford (1959), to differentiate its elements. The taxonomy of thinking by Bloom and associates (1956), was chosen for curricular and instructional work in Manitowoc because it was comprehensive, comprehensible, and most important, amenable to application in the classroom.

The extent to which instructional research and development work can use the taxonomy as a tool depends in part upon whether the categories of questions are sufficiently discrete to allow reliable classification. Stanley and Bolton (1957) found that graduate students could classify test items into major categories with a considerable degree of reliability. In studying how items were selected from an item pool, Cox (1965) found that three judges working independently could reach substantial agreement on the classification of 379 test items from the end-of-term examinations in the introductory natural sciences sequence at Michigan State University. In an experiment conducted by Thomas (1965), two judges agreed on the classification of twenty-seven out of thirty-three test items. On a test of thirty-four items developed by Kropp and Stoker (1964), eleven questions were agreed upon unanimously by five judges, nine questions by four out of five judges, and fourteen questions by three out of five.

There has also been some evidence that the categories of the taxonomy are in fact cumulative and hierarchical, as originally postulated. By studying item difficulty and subtest intercorrelation of a comprehensive test which included all categories, Kropp and Stoker (1964) found that, except for the evaluation category, there existed a simplex structure in the intercorrelation matrix and a direct relationship between difficulty and hierarchical position of the categories. Thomas's findings (1965) dealt with only the first three categories but also found them to be hierarchical.

A recent and comprehensive survey of the educational research relating to Bloom's taxonomy was a pre-session of the American Educational Research Association Convention, February 9, 1965, called by David Krathwohl. Most of the participants were concerned either with testing the structure of the taxonomy or with test construction growing out of a specified curriculum plan. Examples of the latter were Dr. Hulda Grobman's efforts to compose examinations for the Biological Sciences Curriculum Study (1963), and Dr. Christine McGuire's and Dr. William Crawford's collaboration in test construction for the University of Illinois Medical School. In both cases, the taxonomy was used to ensure that pupils were evaluated at all appropriate cognitive levels. Neither at this meeting nor elsewhere in the literature are there reports of efforts to use taxonomy for guiding teachers in planning instructional strategies for the classroom.

During the past five years in Manitowoc a modification of Bloom's cognitive taxonomy has been developed as a tool to assist teachers in systematically controlling the cognitive processes of learning (Sanders, 1965). This modification has come to be known as the "Taxonomy of Questions." "Questions" are broadly considered to be any intellectual exercise calling for a response from pupils; this would include both problems and projects as well as interrogative statements. The following definitions are too brief to give full description of each category, but they do indicate how the taxonomy is structured:

MEMORY: Those questions the correct solution of which requires the pupil to recall or recognize information previously presented to him.

TRANSLATION: Those questions which require that items of given information be changed into a different symbolic form or language.

INTERPRETATION: Those questions the correct solution of which requires that the pupil identify or use and manipulate relationships among facts, generalizations, definitions, values, and/or skills. Interpretation questions supply the pupil with identification of the relationships or concepts needed for solution and with the nature of the terminal performance asked for.

APPLICATION: Those questions which present situations or lifelike problems in the absence of specific directions on how to proceed; the correct solution of these questions require that the pupil (1) identify which previously studied concept or relationships are relevant to the situation and (2) use these concepts or relationships correctly for the situation presented in the question.

ANALYSIS: Those problems the correct solution of which requires that the pupil, in addition to identifying and using relevant previously studied relationships as in application, divide the problem into separate parts and use formal modes of logic.

SYNTHESIS: Those questions that require a pupil to produce a response that is creative or original for him.

EVALUATION: Those questions that require the pupil to make a value judgment on the basis of criteria that are designated by the pupil.

An example of how the question categories may be used to plan instruction of a topic is given in Table One.

Certain studies have dealt with efforts to measure effects of differing questioning procedures, but these studies have generally not described questioning procedures in terms of the cognitive Taxonomy of Educational Objectives. Several of these related studies have investigated "learning by discovery". Craig (1956) compared the learning of those pupils who were forced to discover relationships with those pupils who were aided in seeing the relationships; the group that had more assistance learned faster and retained ideas longer. Kittell (1957) compared discovery of a rule with limited help with full presentation of answers and found that the limited help procedure facilitated transfer. Guided discovery was superior to full presentation of information in producing long range retention and transfer according to Ray (1961). In another experiment, Kersh (1958) found no advantage in retention for those who discovered

TABLE ONE
ILLUSTRATION OF TEACHING A TOPIC AT DIFFERENT LEVELS

Students can be led to think in each category through the use of such questions as these:

1. MEMORY: What is meant by "gerrymandering"? (The student is asked to recall the definition presented to him earlier.)

2. TRANSLATION: The Encyclopedia of Social Sciences defines "gerrymander" in this way:

   'Gerrymander' is a term used to describe the abuse of power whereby the political party dominant at the time in a legislature arranges constituencies unequally so that its voting strength may count for as much as possible at elections and that of the other party or parties for as little as possible.

   Restate this definition in your own words.

3. INTERPRETATION: Each county in the diagram of the mythical state has about the same population and is dominated by the designated political party "A" or "B." The state must be divided into five voting districts of about equal population. Each district must contain three counties.

A	B	B	A	A
A	A	B	A	B
A	A	B	A	B

   What is the greatest number of districts that Party A could control if it is in charge of the redistricting and chooses to gerrymander? What is the greatest number of districts that Party B could control if it is in charge of the redistricting and chooses to gerrymander: (The students have previously been given a definition of "gerrymandering.")

4. APPLICATION: The mayor recently appointed a committee to study the fairness of of the boundaries of the election districts in our community. Gather information about the present districts and the population in each. Determine whether the present city election districts are adequate. (The student is expected to apply principles of democracy studied in class to this new problem.)

5. ANALYSIS: Analyze the reasoning in this quotation: "Human beings lack the ability to be fair when their own interests are involved. Party X controls the legislature and now it has taken upon itself the responsibility of redrawing the boundaries of the legislative election districts. We know in advance that our party will suffer."

6. SYNTHESIS: (This question must follow the application question given above.) If current election districts in our community are inadequate, suggest how they might be redrawn.

7. EVALUATION: Would you favor having your political party engage in gerrymandering if it had the opportunity? State the reasons for your answer.

rather than being presented an answer, but he did find a Zeigarnik effect for those who attempted to learn by discovery.

One of the problems of these studies of learning has been with the term "discovery." The term has been used in various ways that could be classified in the taxonomy of educational objectives anywhere from comprehension up to evaluation. In a detailed review and discussion of learning by discovery, Wittrock (1964) reviewed the wide variety of uses for the term (including even using "discovery" both as an intervening variable and a dependent variable) and pointed out the need for a theory that calls attention to certain independent stimulus variables affecting problem solving and concept learning performance. The study in this proposal is based on a rationale (the "Taxonomy of Questions") for the use of one class of stimulus variables, namely, instructional questions. The Wittrock review also pointed out the empirical support for two factors that facilitate transfer (at least transfer to new instances of learned concepts): (1) certain directions from the experimenter which allow the learner to practice applying the concept and (2) the variety of problems to be solved if the problems are learned to at least a moderate degree. The procedures contained in this proposal will study these factors directly in the teaching of instructional units in the classroom.

In a somewhat different context, Gagne's (1962) theoretical and empirical work has divided the independent variables for "productive learning" into two categories. "Productive learning" is that which enables a learner to perform successfully on an active class of tasks rather than just one instance of that task, and the categories of independent variables are "knowledge" and "instructions." The four functions of instructions are to identify the required terminal performance, to identify the elements required, to establish the recallibility of learning sets, and to guide thinking in application. According to Gagne little is known about this last function. In this proposal the effects of independent variables of interpretation and application questions will be studied directly, and the crucial distinction between the two categories of questions depends upon whether necessary concepts for problem solution are specified and the degree of directions in problem solution. In this sense the proposed investigation will study the second and fourth functions of Gagne's "instructions" on the application of concepts in new situations.

OBJECTIVES

The purposes of the proposed study are to investigate the effects of different kinds of questioning strategies during instruction on pupils' understanding and use of the major concepts taught in various subject matters. Both the questioning strategies and the levels of pupil understanding are differentiated by means of the taxonomy of questions, previously described. In particular it is intended that the study investigate whether experience in responding to application questions is a necessary or highly desirable condition before a pupil will apply a learned concept to a new situation.

The effects of different questioning strategies in pupils' learning will be studied by means of classroom experiments that contrast different questioning categories and strategies.

Necessary Conditions for Hypothesis Testing: Certain conditions must be met before the methods can be expected to provide a true test of the hypotheses; and the hypotheses, if accepted, would hold only only within this range of condtions. These conditions are:

1. Major concepts that are inherent in the structure of the subject matter and have a wide range of generality in the subject matter have been identified and specified; further, the instructional materials and activities have been organized for the major purpose of teaching these concepts at varying levels of abstraction; this further implies that the subject matter under study must be amenable to organization around selected major concepts.

2. Questions are presented during classroom instruction such that most or all pupils make an active response in attempting to find answers; this implies that many questions must be presented in situations other than a general classroom discussion where it is possible that a minority of pupils do all the responding, overt or covert.

3. Questions and attempted responses to questions must comprise a substantial portion of the time during the experimental instruction or else the differing questioning strategies will have little discernable effect. The minimum proportion of time to be spent on question asking and answering in all but the control treatments is specified in this study to be one-half. Further, where experimental instructional methods differ because of the inclusion of a certain category of questions, the proportion of time spent on this unique question category must be substantial - at least one-half of the time that is devoted to questioning.

4. Provisions for feedback must exist whenever pupils attempt to respond to questions; pupils need to know the adequacy of their answers if they are to learn from a questioning technique.

5. Questions generally need to be at a level of abstraction and difficulty such that most or all pupils will be able to formulate a response that has a fair chance of success.

Provisions for meeting these conditions for all experimental treatments are described in the following sections. Within the range of these conditions, the following hypotheses of the study are advanced:

Hypothesis One: There is a greater tendency for pupils to apply concepts correctly to new situations if, after a period of initial learning of the concepts, they have studied these concepts by responding to interpretation and translation questions rather than attending to additional expository presentations and responding to memory questions.

Hypothesis Two: There is a greater tendency for pupils to apply concepts correctly to new situations if, after a period of initial learning and then practice by means of interpretation questions, they have practiced responding to application questions rather than additional interpretation and translation questions.

The hypotheses given above are the major alternate hypotheses of the proposed study. The corresponding null hypotheses and procedures for testing them are presented in the next section.

Secondary Objectives: The major objectives of the proposed investigation are to test the hypotheses given above in a variety of subject-matter fields and grade levels. Besides testing these hypotheses, there are other subsidiary objectives for the proposed study: (1) Testing hypotheses of secondary concern, such as those concerning understanding on the interpretation level. Such an hypothesis is "Pupils who study major concepts by responding to interpretation and translation questions are more likely to be able to interpret relationships among the concepts than pupils who studied the concepts solely by means of memory questions and attending to expository presentations." (2) The further development of instructional materials to be used in the experiments in different subjects; they would be specific, detailed, and illustrative of how the "Taxonomy of Questions" can be applied to teaching materials. (3) Discovery of some characteristics of concepts (process or content, abstract or concrete, familiar or unfamiliar) that make them more amenable for teaching by a particular instructional strategy. (4) Some answers to practical, familiar questions by teachers relating to time usage: by spending more time in order to use application questions, can one expect learning at the application level, or would one be better off teaching more concepts using less time for each?

PROCEDURES

a. General Description:

The proposed investigation will consist of a group of classroom experiments rather than a large-scale single experiment.[3] Each of the experiments will test the general hypotheses stated in the previous section in a specific subject matter field and grade level.

The experiments will begin during the second half of the first school year of the project and continue throughout the second year. The initial part of the project time will be devoted to the refinement and organization of the instructional materials, informal tryouts of materials in various classrooms, and classification of both instructional and test questions by independent judges. The work of organizing the materials and conducting the experiments will depend upon three project associates, appointed for the duration of the project, as well as the co-directors.

Instructional materials used in the experimental treatments would be an outgrowth of curricular work conducted in the Manitowoc schools during the past five years.[4] The project personnel would organize the curricular materials from this work into different sets that are the same except for the types of questions used to teach the major concepts. The output of previous curricular work has produced a pool from which questions and exercises as well as expository materials about major concepts can be selected. A representative list of concepts formed sequentially on the basis of this curricular work is presented in Appendix A.

It is planned that experiments would be conducted in the following fields: 11th grade American history, 10th grade biology, 8th grade English (concepts from linguistics and semantics), 9th grade civics, chemistry, 10th grade geometry, 9th grade general math, second grade science, third grade social studies, fifth grade science, and sixth grade social studies.

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[3] The advantages in conducting multiple experiments rather than a single larger study are believed to be that (1) the range of generality of any significant results across subject matter fields and kinds of concepts could be more appropriately assessed, i.e., significant results would be supported or qualified by cross-validating experiments, (2) in those instances where certain experiments begin after others end, experimental treatments may be modified on the basis of previously obtained results or leads, (3) greater flexibility exists in manipulating independent variables in small studies, and (4) there is less risk of a breakdown of treatment application endangering the overall study when the study is based on multiple experiments; similarly, there is less risk in delay of project completion when data is collected and analyzed throughout the study than when all the analysis and evaluation occurs only in the final stages of the project.

[4] Part of this work has been conducted pursuant to a small grant project (S-168) from the U. S. Office of Education to the Manitowoc Public Schools. The curricular aspects of this work has centered on the identification of major concepts in a subject matter field by persons well versed in the fields and the organization of instructional materials and courses of study around these objectives. This work was conducted throughout the school year 1964-1965 and the summer of 1965.

b. **Description of the Treatments:**

In the experiments, all treatments will have the following elements in common:

--All treatments in an experiment will be designed for a single subject matter unit.

--All experimental treatments will be conducted in a classroom setting by a classroom teacher or project associate to a group of about twenty pupils.

--The major objectives of a unit in all treatments will be to have pupils understand some major concepts (that have a wide range of applicability), and the materials and activities will be organized around these concepts.

--All treatments will begin with approximately two weeks devoted to expositions, readings, some supplementary informational presentations (such as filmstrips), and memory questions about the major concepts of a unit. During this exposition-memory phase, the major concepts together with illustrations of their applicability will be presented explicitly to the pupils.

--All treatments will use the same instructional materials except those materials unique for the particular type of questions asked.

--Questions will be asked of pupils in all treatments, and the questions usually will be administered in such a way that each pupil will construct a trial response individually. In many cases this will mean that pupils will write attempted answers on paper prior to a classroom discussion about possible answers. Questions will include study questions related to reading assignments.

--Once pupils have constructed attempted answers to questions, there will be provisions for feedback so that pupils can evaluate the adequacy of their answers. This feedback would often occur as a result of follow-up discussions and expositions by the teacher.

The treatments will vary systematically according to certain phases with each phase emphasizing a different category of question. Each treatment will use a different combination of the following phases:

Exposition-Memory Phase: Concepts, supporting detail, and illustrative applications are presented to the pupils by means of readings, expositions by the teacher, and other instructional materials. Questions would be limited to those in the memory category, and these memory questions would take up approximately one-third of class time.

Review-Memory Phase: Subject matter introduced previously is gone over again by additional expositions and memory questions. This phase will afford an opportunity for overlearning by the pupils.

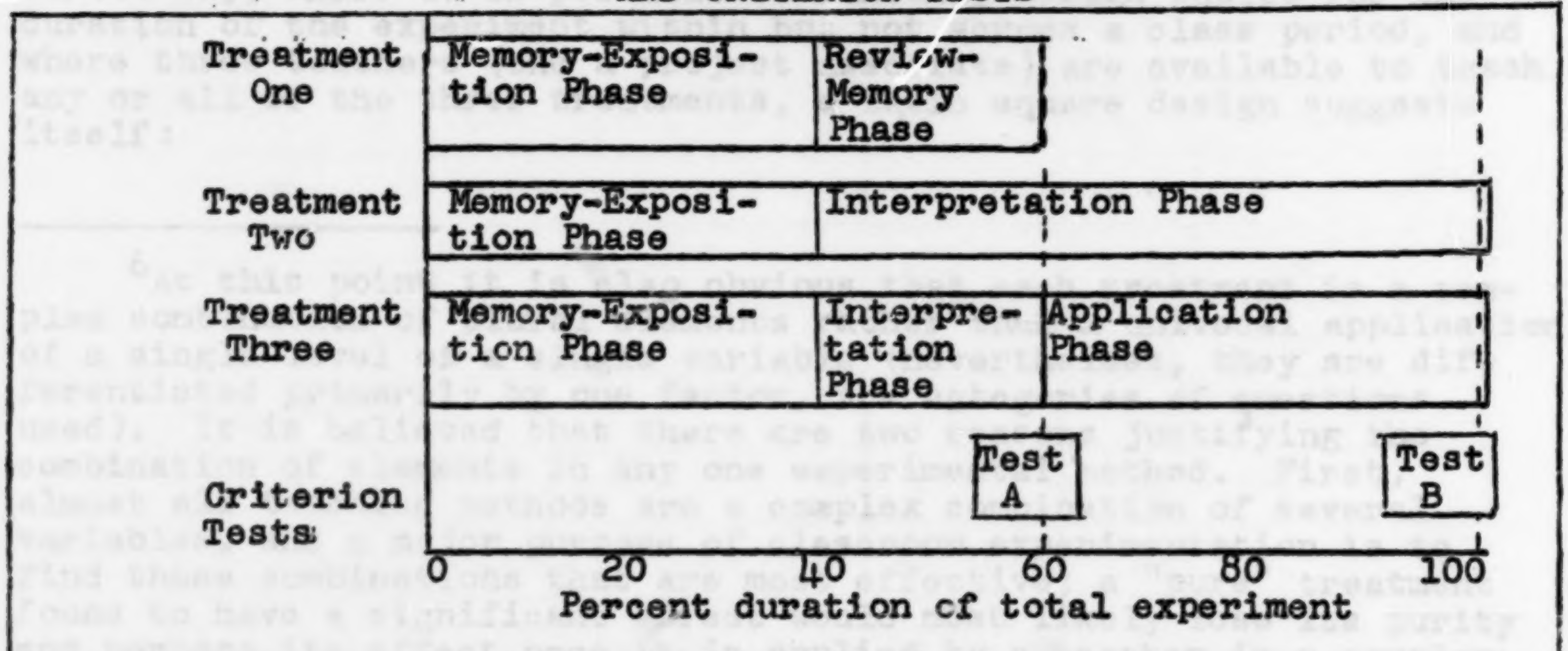
Interpretation-Translation Phase: Two-thirds of class time, plus out of class assignments, are spent asking and answering interpretation and translation questions about the subject matter introduced previously. The questions will require that pupils manipulate the symbolic form of the concepts and solve problems using relationships associated with the concepts.

Application Phase: Two-thirds of class time are spent asking and answering questions about the subject matter at the application level.

All treatments will begin with an exposition-memory phase that will last approximately two-fifths of the duration of the experiment. From there the treatments will vary. Treatment one will go into a review-memory phase and then terminate earlier than the other two. Treatment two will move into an interpretation-translation phase and remain in that phase for the duration of the experiment. Treatment three will move into an interpretation-translation phase and then into application.[5] Two criterion tests (other than delayed tests of retention) will be given to all groups, one at the termination of treatment one and the other at the termination of treatments two and three. The arrangement of the treatments and the tests are illustrated in TABLE TWO:

TABLE TWO

ARRANGEMENTS AND TIME SCHEDULE FOR EXPERIMENTAL TREATMENTS AND CRITERION TESTS


Treatment One
Memory-Exposition Phase
Review-Memory Phase
Treatment Two
Memory-Exposition Phase
Interpretation Phase
Treatment Three
Memory-Exposition Phase
Interpretation Phase
Application Phase
Criterion Tests
Test A
Test B
0
20
40
60
80
100
Percent duration of total experiment

(Experimental subjects will be assigned randomly to one of the three treatments)

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[5] For convenience in interpretation, it would be desirable to have the same duration for all treatments; however, it is not realistic to have the memory-exposition treatment extend as long as the other treatments without bringing in subject matter material unique to that treatment. A comparison between interpretation and memory treatments on application thinking (hypothesis one) which is not confounded with time elements may still be made by the first test; and the comparison made by the second test will afford some information about practical questions about time usage as well as the second major hypothesis of the study.

Both test A and test B will be criterion measures of understanding of the concepts at the application level. Test A, which coincides with the termination of treatment one, will afford a test of the first hypothesis. Test B will permit a test of the second major hypothesis of the study.

The experiments will last for a duration of four to six weeks depending upon the exact grade level and subject matter field in which it is conducted. Besides modification because of subject specifics, it is expected that the treatments in later experiments will be modified on the basis of results of earlier experiments.[6]

c. Design and Analysis for Experiments in the Secondary Schools:

In a skeletal sense the design for each experiment is simply to apply each treatment to a separate, randomly selected group of pupils and the test for the relevant differences among the groups. In a school setting, other complications occur which must be taken into account in the design; pupils usually cannot be randomly grouped across different periods of the school day, and different teachers, who may have different effects on pupil outcomes, are needed to teach the experimental methods. A minimum of three factors must thereby be considered in the design; teachers, class periods, and experimental treatments (methods). Given a situation where two classes (of approximately thirty pupils each) of the same subjects are normally scheduled at the same time during three periods of the school day, where it is possible to randomly assign pupils for the duration of the experiment within but not across a class period, and where three teachers (one a project associate) are available to teach any or all of the three treatments, a Latin square design suggests itself:

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[6] At this point it is also obvious that each treatment is a complex combination of plural elements rather than a univocal application of a single level of a single variable (nevertheless, they are differentiated primarily by one factor, the categories of questions used). It is believed that there are two reasons justifying the combination of elements in any one experimental method. First, almost all teaching methods are a complex combination of several variables, and a major purpose of classroom experimentation is to find those combinations that are most effective; a "pure" treatment found to have a significant effect would most likely lose its purity and perhaps its effect once it is applied by a teacher in a complex, ongoing school operation. Secondly, a study of a complex treatment combination may lead to more discriminating studies of the elements contained therein; Campbell and Stanley (1963, p. 203) have argued:

> The actual X in any experiment is a complex package of what will eventually be conceptualized as several variables. Once a strong and clear-cut effect has been noted, the course of science consists of further experiments which refine the X, teasing out those aspects which are most essential to the effect. This refinement can occur through more specifically defined and represented treatments, or through developing novel control groups, which come to match the experimental group on more and more features of the treatment, reducing the differences to more specific features of the original complex X.

	Teacher A	Teacher B	Teacher C
Period 1	Method 1	Method 2	Method 3
Period 2	Method 2	Method 3	Method 1
Period 3	Method 3	Method 1	Method 2

Each method occurs once for each teacher and once for each period in this design. The number of pupils assigned to each cell would be approximately 20 and the total number would be approximately 180. The period rows and the teacher columns would be randomly permuted for each experiment. The class periods may be considered as blocks in this design in that pupils will be randomly assigned within but not between periods.

In this design the method effect is confounded with the period-teacher interaction effect. It is believed that period-teacher interaction would be neglibible and free from bias; moreover, the method would be assigned at random to any particular teacher-period combination because of the random permutation of rows and columns.[7]

From this design a fixed model analysis of variance table may be constructed (TABLE THREE).[8]

TABLE THREE

ANALYSIS OF VARIANCE FOR DATA FROM ONE TEST IN THE SECONDARY SCHOOL EXPERIMENTS

Source of Variation	d.f.	E (MS)
α_i Class period (block)	2	$\sigma_\varepsilon^2 + 3n\sigma_\alpha^2$
β_j Teacher	2	$\sigma_\varepsilon^2 + 3n\sigma_\beta^2$
γ_k Method*	2	$\sigma_\varepsilon^2 + 3n\sigma_\gamma^2$
r Residual	2	$\sigma_\varepsilon^2 + \sigma_r^2$
ε Between pupils within cell	9(n-1)	σ_ε^2 $n \approx 20$ $N \approx 180$

*The only null hypthesis implicit in the above layout which is of concern to the study is that related to the method source of variation. $H_0: \gamma_k = 0$ is the null hypothesis for either (depending upon which test results are used in the analysis) of the alternate hypotheses stated in the Objective section. Stated in words, the null hypothesis is, "There is no difference between pupils on the ability to apply previously studied concepts that is attributable to the differences in questions used to study the concepts."

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[7] A partial check for the presence of any interaction will be made by the F ratio $\frac{MSres}{MSerror}$.

[8] Such a design and analysis is described in Winer (1962, pp. 524-5).

In determining the significance of the main effects, the within cell term could be used as a denominator for an F test to determine if any method effect existed, but it would be more appropriate in terms of the hypotheses stated in the Objectives Section to use a multiple comparison procedure, with the mean of method three predicted to be larger than the mean of method two, and the mean of method two predicted to be larger than the mean of method one.[9]

In this analysis the individual pupil, randomly assigned to a treatment within any one period, would be considered as the experimental unit. The consideration of a randomly assigned pupil in a classroom group as the experimental unit, even though a common practice, involves a rather troublesome assumption, namely, that each pupil can react to the treatment independently from other pupils in the group. This would require that a significant effect, particularly if not consistent over most of the experiments, could be accepted as supporting an alternate hypothesis only as qualified clearly by the assumption.[10] It also would require a close check on the proceedings during the application of the treatments in order to estimate subjectively the validity of the assumption of independence.

The design and analysis presented in this section only takes into consideration a single criterion measure. As such, the design is only a prototype for a more complex design which would take into account criterion measures taken at different times. Design and analysis for this situation is presented in Appendix C.

d. Design and Analysis for Elementary School Experiments:

Because of the nature of the elementary school operation, the elementary school experiments will differ from the secondary school experiments in the following respects: (1) a single experiment will contrast only two treatments, (2) the duration of the class period during any one day of the treatment will be shorter, and (3) in any one experiment there will be two replicates of the two-treatment contrast, each replicate involving a regular teacher and a project associate acting as teacher.

The elementary experiments will be conducted in science and in social studies in at least two grade levels.

Given a situation in which two self-contained classrooms of the same grade level are present within a school building, it is possible for an experimental teacher (a project associate) to teach one method to half of one classroom and then later in the day teach the other method to half of the second class. The regular teacher of a class will teach the same subject by the opposite method in a different room at the same time the experimental teacher is conducting his session.

	Experimental Teacher	Regular Teacher
Class 1	Method A	Method B
Class 2	Method B	Method A

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[9] Multiple comparison procedures appropriate for such a situation are described in Hays (1963, ch. 12),

[10] Assuming no interaction, a safer F test of the significance of

The analysis would be according to the following analysis of variance table:

	Source of Variation	d.f.	E (MS)
α_i	Teacher	1	$\sigma_\varepsilon^2 + 2n\sigma_\alpha^2$
β_j	Methods	1	$\sigma_\varepsilon^2 + 2n\sigma_\beta^2$
r	Residual	1	$\sigma_\varepsilon^2 + \sigma_r^2$
ε	Within cell	4 (n-1)	σ_ε^2

Two experiments of this sort, each in a different elementary school building but in the same grade level, and each comparing two of the three experimental methods, will test both of the major hypothesis; a contrast of method one and method two would test the first hypothesis, and a contrast of method two and three in another experiment would test the second hypothesis. This would provide the same number of contrasts as each of the secondary school experiments. Two of these experiments could be conducted simultaneously, and there would be no problem in conducting six of them with the use of one project associate during the course of one school year.

e. **Population and Sample:**

Experimental subjects will be the Manitowoc pupils normally assigned to the subject matters and grade levels under study. The subjects will be randomly reassigned to the three experimental treatments. The school population, coming from an industrial community, represents a heterogeneous economic and social class background.

f. **Instrumentation:**

Measures of the dependent variable, application of previously studied concepts to new situations, in each of the experiments would be obtained by means of subject matter tests assembled by the project personnel.[11] Each item would be an application question and would by definition require that for a correct solution of the problem a pupil must (1) determine whether any previously studied concept is relevant to the problem, (2) identify which previously studied concept is relevant, and (3) use the concept correctly to solve the problem or interpret the situation. The first requirement would be tested by the inclusion of "dummy items," situations for which previously studied concepts do not apply. The first two requirements differentiate application questions from interpretation questions.

([10] cont.) the overall main method effect could be made by using the residual as the error term in an F ratio. However, with only two degrees of freedom for the residual, this test would be extremeley conservative (the critical value for F at the .01 level is 99.0), and the chance of discovering a difference if it in fact existed would be quite small.

[11] With work currently underway at various places, particularly Florida State University, it is possible that item pools of applicatio questions may become available after the submission of this proposal. If items from such sources are suitable for the particular concepts

After initial construction and selection of test items, the items would be submitted to an independent panel of judges for classification. Those items judged to fall in the application category would be retained for use in the test instruments. Application exercises used for instruction in treatment three would also be submitted to independent judges for classification.

Samples of criterion test items are given in Appendix B.

g. Time Schedule

Beginning Date: August 1, 1965	Ending Date: July 31, 1968
August 1, 1966 - January 15, 1967	Organization of Instructional Materials and Preparation of Application Tests. Informal Tryouts of Materials and Tests.
January 15, 1967 - June 1, 1967	Experiments conducted in 11th grade American History, 9th grade civics, 9th grade algebra, 6th grade social studies, and 3rd grade scienc
July, August 1967	Analysis of data from completed experiments. Modification and further development of instructional materials and tests for future experiments. Reevaluation of rationale underlying experimental treatments.
September 1967 - May 1968	Completion of remainder of experiments.
June, July 1968	Final analysis of data; completion of report.

([11] cont.) taught in the experiments, they would be used. However, the chance that many items would fit the content of the units closely is rather small, and the necessity for local construction of items will probably remain.

PERSONNEL

1. Dr. Norris M. Sanders has taught in junior and senior high school for eleven years. For the past five and one-half years has been Director of Research in the Manitowoc Public Schools, Manitowoc, Wisconsin. He served as president of the Wisconsin Council for the Social Studies, as a member of the Curriculum Committee of the National Council for the Social Studies and is currently a member of the Wisconsin State Social Studies Curriculum Committee. Dr. Sanders has conducted a number of workshops on classroom questioning and has a book in press with Harper and Row entitled Classroom Questions: What Kind?

2. Dr. Burton L. Grover is currently Secondary Consultant for the Manitowoc school system. He has had previous experience teaching high school social studies, supervising student teachers for the University of Minnesota, and coordinating the placement of these student teachers. Dr. Grover did small-scale research on student teachers' understanding of applied learning psychology for his M.S. and conducted experimentation involving divergent thinking in classrooms for a doctoral dissertation at the University of Minnesota. Recent publications and professional papers of Dr. Grover include:

   "The Interaction of Abilities and Method in a Divergent Classroom Situation," Paper read at the AST Convention, February 27, 1964, Chicago, Illinois.

   "Systematic Classroom Observation Designed to Classify Questions and Record Verbal Interaction," Paper read at WERA Conference, December 4, 1964, Stevens Point, Wisconsin.

   "Prediction of Achievement in Convergent and Divergent Learning Situations," Journal of Educational Research (in press)

   Dr. Grover has recently participated in an eight week post-doctoral study of research methodology and statistics in an NSF summer program directed by Dr. Julian Stanley.

3. Mr. Ernest Ludwig is Co-ordinator of the Educational Program Development and Improvement for the Wisconsin Department of Public Instruction. His responsibility is to survey educational innovations throughout the nation and assess their applicability to Wisconsin. Mr. Ludwig was a junior high school principal from 1947 to 1964. For fourteen summers he taught guidance to graduate students at Oregon State University and Portland State College. Mr. Ludwig served on the Curriculum Committee and the Public Relations Committee of the Wisconsin Education Association and was vice president of this organization.

FACILITIES

The Manitowoc Public School District has a population of 36,000. A student enrollment of 6,600 is served by a professional staff of 300 and a non-professional staff of 92. There are nine elementary schools, two junior high schools and one senior high school. The schools are well-supplied with instructional materials and equipment. Little can be said here about the curriculum except that efforts are made to keep it abreast with the best knowledge available in education.

During the last five years Manitowoc has participated in a number of research projects in the areas of instructional teams, the use of the tape recorder in instruction, closed-circuit television, a study of comparative methods in teaching current events, and programed learning. Results of these efforts have been published in educational periodicals.

The curriculum, staff and financial resources of Manitowoc are similar to a multitude of school districts in the nation. If Manitowoc can improve the quality of instruction through the use of the taxonomy of questions, then it is reasonable to assume that many other districts might be able to do the same.

The Laboratory of Experimental Design of the University of Wisconsin published a description of its organization and functions in Bulletin One of the LED, March 1963. The following paragraph is quoted from this bulletin:

> "The Laboratory came into existence in the fall of 1961 and is a subdivision of the department of Educational Psychology. It was organized and is presently directed by Professor Julian C. Stanley, Chairman, Department of Educational Psychology. Assistant Professor Frank B. Baker is Associate Director. ....
>
> "As members of the Educational Psychology department, the Laboratory members are particularly interested in research which is sufficiently general to be useful in many situations. In many cases then, experiments should be done in the situations in which the results are to be applied."

OTHER INFORMATION

Other than the federal funds requested by this proposal, support would come from the Manitowoc Public Schools.

The research proposal contained herein represents and outgrowth of the work related to a small grant project (S-168) from the U.S. Office of Education. The current proposal has not been submitted to any other organization or agency; it is a modification of a proposal submitted to the Cooperative Research Program on March 1, 1965.

JUSTIFICATION FOR FUNDS

The development of the curricular and in-service aspects of the "Taxonomy of Questions" has proceeded during the past five years in the local school district of Manitowoc, Wisconsin. As a result of this work, a rationale for the use of instructional questions has been formulated, a number of teachers have been taught the rationale by means of special summer workshops and regular in-service programs, and special instructional units and exercises have been produced.

With the exception of the curricular work supported by the Small Grant Project S-168 from the U. S. Office of Education, all of the developmental and in-service work has been financed by local school district funds. Chief expenditures from local funds have been for payments to teachers to attend workshops ($5,000 during 1964), instructional secretaries and supplies, and the salary of the Research Director, Dr. Sanders.

The curricular development and in-service work with the "Taxonomy of Questions" will continue with local financing whether or not the current proposal is funded. However, this developmental work has proceeded to the point where it has generated hypotheses that need to be tested. Classroom experimentation is needed to test hypotheses, to search for empirically-grounded relationships that have some degree of generality, and to provide valid guidelines for future developmental work. The experimental work will require additional resources, particularly in terms of personnel, than are available from local funds. In order to conduct controlled classroom experiments over a range of subject matters and grade levels, project associates are needed to help organize materials, conduct experiments, and assist in the evaluation of the results. Controlled experimentation in different subject matter fields, conducted with the help of experienced project associates (who will be selected from those teachers who have already demonstrated competence in the study and application of the rationale), is believed to be a vital adjunct to the development of an instructional theory of questioning in the classroom.

BUDGET

	Fiscal Year 1967		Fiscal Year 1968		Total	
	Federal	Local	Federal	Local	Federal	Local
Personnel						
Co-Director (Sanders) ½ time for 10 months		$5000		$5000		$10000
Full time for one month in summer	$1000		$1000		$2000	
Co-Director (Grover) ¼ time for 10 months		2500		2500		5000
Full time for one month in summer	1000		1000		2000	
3 Project associates (full time for 11 months) (per year)	27000		27000		54000	
2 Secretaries (full time for 11 months per year)	2500	2500	2500	2500	5000	5000
Supplies and Materials						
Instructional Materials		1000		1000		2000
Papers and Stencils	150	100	150	100	300	200
Desk calculator		700				700
Services						
Computer rental, statistical service	500		1000		1500	
Duplication of final report			500		500	
Statistical consultation	250		250		500	
	32400	11800	33400	11100	65800	22900
Overhead (5%)	1620		1670		3290	
	$34020	$11800	$35070	$11100	$69090	$22900

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APPENDIX A

MAJOR CONCEPTS

Conceptual learning is in vogue today, but educators differ in their definitions of the term "concept." For this project the following characteristics of concepts serve as a definition.

1. A concept is the meaning that an individual associates with words, other symbols, or experiences.
2. Concepts are convenient units of understanding for learning and use.
3. Concepts vary in complexity, abstraction, importance, accuracy, and usefulness.
4. Broad concepts are made up of smaller concepts that can be identified and treated separately.
5. Concepts are always at least partly subjective because they are based on personal integration and differentiation.
6. Concepts can be communicated by words and other symbols but communication is often not perfect because of the semantic difficulties.
7. Concepts can have both cognitive and affective elements.

Although concept formation is based on finding "unity in variety" it is a mistake to assume that concepts are inherently important. The problem of content selection in education is not simply to identify concepts but rather to extract from the multitude a few of prime importance. Phenix expressed this idea well when he wrote:

> By a careful analysis of the structure of knowledge it is possible to discover certain key concepts distinguished by their power to epitomize important common features of a large number of more particular ideas. Such concepts are basic central ideas, an understanding of which opens the door to an effective grasp of an entire field of knowledge. (Phenix, 1956)

The major concepts chosen for emphasis in the experimental units of this project have broad power to explain, classify, or solve. They relate to the basic needs of man in our culture and thereby are frequently encountered in life. Because of their nature, the major concepts are not restricted to isolated units but appear again and again. They transcend the arbitrary lines of subject-matter fields and grade levels.

The major concepts in social studies and science to be used under this proposal have been identified as a part of Small Grant Proposal S-168 from the U.S. Office of Education to the Manitowoc Public Schools. Following is a representative sample of content concepts in social studied and process concepts in science. Nearly all these topics are highly susceptible to instruction on the application level. These lists do not define the major concepts but simply name them and indicate the grade levels on which they will be taught. Their definitions can be found in Section III of the Final Report of Project S-168.

Tentative Powerful Concepts for the Social Studies

Kindergarten

Physical similarities and differences among humans
Functions of family
Role differentiation in family
Rules, Authority

First Grade

(Introduce year with unit on food followed by community helps, shelter and clothing)
Buying and selling goods and services at the market
Production of goods and services
Ownership of goods - private and public
Money as a medium of exchange

Second Grade

Psychological and physical similarities of humans
Basic institutions in all societies
Review economic ideas from first grade and apply to communication and transportation

Applied to unit on Indians and early Manitowoc

Third Grade

Political and geographic conception of city, state, nation
Law making and enforcing on three levels
Division of labor (technical and geographic)
Specialization, interdependence, transportation
Technology in production
Investment, savings, labor, management

Fourth Grade

Physical and psychological similarities and differences among humans (race)
Relationship between man and enviroment
Production, land, labor, capital, entrepreneur
Subsistence and commercial production
Consumption, standard of living
Functions of state government
Ethnocentrism, classification

Fifth Grade

Basic economic decisions
Basic economic forces of production, consumption and exchange
Viewpoint of economics
Capitalism, private ownership, free enterprise, profit, competition
Allocation of economic resources
Geographic concept of region

Sixth Grade

Human evolution, cultural evolution, culture, cultural change
Man as a cultural product
Behavior as culturally oriented (viewpoint of anthropolgy)
Democracy, variations in government (popular sovereignty, limited government)
Social organization (structure, process, control)

Seventh Grade

(Shares concepts of sixth grade with emphasis on application)
Economically and technically underdeveloped nations
International relations
Use of natural resources
Nature of values

Eighth Grade

Geographic power structure
Party system
Change in government
Cultural change

Ninth Grade

Principles in U.S. government
Liberal and conservative philosophies
Sociological approach to government (viewpoint of sociology)
Structure of local, state, and national government

Process Concepts in Science

Observation

Kdgn. - Grades 1-2-3

I. Process
   - A. Observe objects
   - B. Observe phenomena
   - C. Use all of the senses

II. Skills to develop
   - A. Make accurate observation
   - B. Make detailed observation
   - C. Be willing to check observations
   - D. Report only observations perceived by any of the senses

III. Use of process
   - A. For identifying objects and phenomena
   - B. For recognizing similarities and differences as an aid to classifying and grouping
   - C. For recognizing properties of matter
   - D. For finding the unusual in the usual

Grades 4-5-6

I. Process
   - A. Extend the senses by using instruments
   - B. Make repeated observations (Results should be the same each time the conditions are the same.)
   - C. Discover factors affecting the accuracy of observations (light, angle of observation, keenness of senses, emotions, distance)
   - D. Record observations

II. Skill to develop
   - A. Use instruments for making accurate, detailed observations
   - B. Be willing to make repeated observations
   - C. Recognize factors affecting accuracy of observations
     - 1. Limitation of our senses
     - 2. Prejudice and emotions
   - D. Make adequate data tables, graphs, diagrams, etc., for recording data

Prediction

Grade III	Grade IV
I. Meaning of Prediction	
A. Understand that repeated, accurate observations sometimes show events happening with regularity and therefore being predictable	→
II. Valid and invalid predictions	
A. Understand that predictions have greater validity if the information being used is reliable and the events occur with some degree of regularity	→
B. Know factors that enter in to distort the regularity of events - making prediction less valid	→
C. Know that predictions are invalid if based on superstitions	→
III. Skills to develop	
A. Consider available information and determine if it is reliable and if event is occuring with enough regularity to make a prediction	→
B. Distinguish between valid and invalid predictions	→
C. Recognize dangers involved in making predictions	→
D. Use graphs as an aid to predicting	→

Space/Time

Grades II -III	Grades IV
I. Process	
A. Develop concepts of space 1. Manipulate objects 2. Visualize objects and shapes 3. Measure distance 4. Recognize curved lines, straight lines, surfaces, angles 5. Sense direction	→
B. Develop concepts of time on clock and calendar	→

Inference

Grade III

I. Process skills
  - A. Recognize as inferences something which follows as probably true because of its connection with some known fact
  - B. Distinguish between inference and observation
  - C. Make one or more inferences based on observations and tell how the evidence supports the inference

Grade IV

I. Process skills
  - A. Recognize inferences supported by strong evidence and inferences supported by weak evidence
  - B. Judge which of several inferences is best supported by the evidence
  - C. Be willing and able to consult authorities or to experiment to check inferences

Controlled Experiment

Grade V - Interpretation level
Grade VI- Interpretation and application level

I. Recognition and saatement of problem
  - A. Recognize a situation in which a problem exists. Distinguish between trivial and important questions
  - B. See the possible relationships among the parts of the situation
  - C. Pick out the single, major idea of the problem
  - D. State the problem in a simple, clear, and concise manner - including what one plans to do
  - E. State the problem within appropriate level of understanding

II. Hypothesizing (higher level inference)
  - A. Recognize hypotheses as only possible answers to problems - "an educated guess"
  - B. State hypothesis in a manner suitable for testing or experimenting
  - C. State the hypothesis clearly so that it can be accepted, rejected or used for further study
  - D. Recognize that several alternative hypotheses are often possible as solutions

III. Control Experiment
  A. In a scientific experiment conditions can be changed, controlled and repeated
  B. Two parts to a controlled experiment aid in comparing one factor at a time
    1. Control part
      a. All conditions are kept the same as they were before the experiment started
    2. Experimental part
      a. One condition is different from the control, and is called the variable. This is necessary in order to prove that whatever happens does so because of this variable factor rather than because of several factors.
      b. All other factors must be the same
  C. The use of a control in an experiment makes errors less likely

IV. Keeping records
  A. Write a detailed description of the procedure so that another person could repeat the experiment at any time
  B. Plan data tables for recording important data
  C. Distinguish between relevant and irrelevant data
  D. Construct graphs, tables, diagrams, averages, percentages, etc. to aid in recording data

V. Interpreting data (observations)
  A. Examine data for relationships among the parts
  B. Use data to help answer the original problem
  C. Compare data with data obtained by others
  D. Recognize the possibility of error and evaluate and question the results of the experiment
  E. Withhold answer to the problem being tested if data does not warrant an answer

VI. Drawing conclusions (answer to problem)
  A. The conclusion is a statement of what the experiment showed, based on the observations made
  B. Recognize the possibility of not being able to draw a valid conclusion from observations made
  C. Avoid making common errors in drawing conclusions
    1. Jumping to a conclusion based on an isolated fact
    2. Jumping to a conclusion based on insufficient evidence
    3. Assuming that if two things occur together that one must be the cause of the other
    4. Making a conclusion too broad
    5. Drawing a conclusion which does not reflect the exact conditions of the experiment

Grade V
Interpretation level

I. Recognition of a controlled experiment (stories)
II. Recognition of the variables and constants in experiments
III. Skill in executing a planned experiment

Grade VI
Interpretation and Application level

I. Primary purpose of an experiment is to secure evidence which might help to answer a problem for which the student does not know the answer
II. Opportunity given to plan the experiment as well as to execute it (prerequisite- an awareness of the elements of the process concepts)
III. An evaluation and a questioning of the results of the experiment should be undertaken

APPENDIX B

THE CHARACTERISTICS AND SCORING PROCEDURES FOR APPLICATION QUESTIONS

The following quotation from *Classroom Questions: What Kinds?* (Sanders, 1965) defines the characteristics of application questions.

> Education should be preparation for life; but, in fact, it is often artificial and far removed from reality. Application questions present problems that approximate the form and context in which they would be encountered in life. In an era of rapid change, educators are concerned about preparing students for life in an unknown future. The application category of questions is designed to give students practice in the transfer of training.
>
> There are three main characteristics of the questions in the application category. First, these questions deal with knowledge which has explanatory or problem-solving power. This is the kind of knowledge that is transferable to many new situations. Second, they deal with the whole of ideas and skills rather than solely with the parts. In the early stages of the instruction of a complicated skill or pattern of ideas, a teacher divides the intellectual process and knowledge into simple segments. This is sound procedure if it is followed by application questions asking the student to reassemble the ideas and skills into their natural whole. The third characteristic is that application questions include a minimum of directions or instructions, because the questions are based on previous learning and the student is expected to know what to do. When a student meets a problem in life, there will be no teacher present to give directions. Application questions give practice in independent use of knowledge and skills.
>
> An application question can be built from a simple principle, definition, value, or skill. For example, one elementary text contains a unit on health in which the students learn the principle that body temperature often rises when a person is ill. A couple chapters later in a unit on heat, there is a picture of a group of children sitting around a table. The sun is shining through the window on one boy and he appears flushed. The students are asked the question: "Why do you think Johnny is so warm?" At that point the teacher could ask the application question: "Can you think of another reason which might explain why Johnny looks warmer than the other children?" This is an application question, because it asks the student to use a principle studied earlier in a new and unexpected context. The second characteristic of application questions - that of dealing with a whole idea - is not a factor in this case, because the principle relating fever to illness is so simple that it was never broken into parts.

To illustrate the nature of the application questions that will be employed in this project, the following Principles of United States Government will be used for illustrative subject matter in a ninth-grade citizenship course.

Principles of United States Government

I. Popular sovereignty
  A. Citizens elect government officials
  B. Universal adult suffrage
  C. Majority rule
  D. Modest qualifications to run for office
  E. Free public education
  F. Public access to information concerning the operation of the government
  G. Civilian authority over military

II. Limited Government
  A. Protection of personal liberties
    1. Judicial protections
    2. Protection of the rights of expression
    3. Right to travel
  B. Secular government
  C. Protection of economic rights
    1. Private ownership of capital and consumer goods
    2. Free enterprise
    3. Right to profit in a system of fair competition
    4. Right to collective bargaining between management and labor
    5. Protection against destitution

III. Separation of powers

IV. Check and balance system

V. Judicial review

VI. The dectrine of federalism

VII. Federal supremacy

VIII. States rights

IX. Flexible constitution through amendment and reinterpretation

These principles and their meanings are taught first on the memory and interpretation levels. The students are also taught the nature of application thinking and informed that they will be expected to use the principles on the application level in subsequent study. Questions like the following call for application thinking. They would be mixed with questions using other principles and other kinds of thinking. However, the scoring on application thinking would only pertain to questions in this format. The procedure for scoring is described at the end of this appendix.

1. In what sense does it run contrary to our United States tradition to have city-operated water and electrical utilities?

2. The Supreme Court of the United States ruled against a Maryland provision that all public officeholders swear that they believe in God. Defend the position of the Court in terms of basic American beliefs.

3. Suppose that the Mayor of our community announced that to save tax money the proceedings of the Common Council would no longer be published in the newspaper. Would this strengthen or weaken democracy in our city? Tell why.

4. What is the significance of the fact that nearly everybody in our nation is legally qualified to run for President at some time during his life.

5. In what sense does the method for choosing U.S. cabinet officers run counter to basic ideas on how our government should be operated?

Situations such as the ones described in these questions can be found in abundance, so there is no problem in writing a large number of items.

Another form of evaluation instrument for application thinking on the Principles of U.S. Government presents a more involved problem, such as the following:

1. A man from a new African nation visits our school. He says his nation is democratic, but you wonder if he uses the word in the same way that we do in the United States. Write a list of questions you could ask him about his government that would reveal the extent to which his government is democratic according to our understanding of the word.

2. (Each member of the class is given a copy of the same issue of a newspaper.) Find eight news items illustrating instances in which the U. S. government is operating according to its historically developed ideals of good government. Find five instances in which the ideals of good government do not seem to be observed. In each case specifically describe the way in which you believe the situation or event in the paper relates to our ideals.

3. Imagine that a foreign exchange student joins our class. He does not know how our government operates. Write a suitable description to introduce him to U.S. government.

4. React to the following excerpts from the Soviet Constitution in terms of the ideas on government that are accepted in the United States.

   Article 6: The land, its mineral wealth, waters, forests, mills, factories, mines, rail, water and air transport, banks, communications, large state-organized agricultural enterprise . . . and the bulk of the dwelling-houses in the cities and industrial localities, are state property . . .

   Article 18-a. Each Union Republic (soviet state) has the right to enter into direct relations with foreign states and to conclude agreements and exchange diplomatic and consular representatives with them.

   Article 20. In the event of divergence between a law of a Union Republic (soviet state) and a law of the Union, the Union law prevails.

Article 32. The legislative power of the U.S.S.R. is exercised exclusively by the Supreme Soviet of the U.S.S.R.

Article 35. The Soviet of Nationalities is elected by the citizens of the U.S.S.R. . . .

Article 70. . . . The Council of Ministers of the U.S.S.R. is appointed by the Supreme Soviet of the U.S.S.R.

Article 124. In order to ensure to citizens freedom of conscience, the church in the U.S.S.R. is separated from the state, and the school from the church. Freedom of religious worship and freedom of anti-religious propaganda is recognized for all citizens.

Article 135. Elections of deputies are universal; all citizens of the U.S.S.R. who have reached the age of eighteen, irrespective of race or nationality, sex, religion, education, domicile social origin, property status or past activities, have the right to vote in the election of deputies . . .

Every citizen of the U.S.S.R. who has reached the age of twenty-three is eligible for election to the Supreme Soviet of the U.S.S.R., irrespective of race or nationality, sex, religion, education, domicile, social origin, property status or past activities.

Article 146. The Constitution of the U.S.S.R. may be amended only by decision of the Supreme Soviet of the U.S.S.R. adopted by a majority of not less than two-thirds of the votes in each of its Chambers.

5. Following is a description of an imaginary nation named Alpha. Write an essay reacting to the new government of Alpha in terms of ideas on government that are endorsed in the United States today.

The imaginary nation of Alpha recently had a revolution that overthrew the dictatorial government of General Napoleon. The crimes of the General were so numerous and cruel that he was condemned to death after a trial that lasted only one-half hour.

The one hundred army officers who led the revolution declared that the new government would be a people's democracy. A legislature made up of two houses was established. The House of Delegates and the House of Peers each has fifty members elected by a majority vote of the adult citizens. Any citizen over twenty-five years of age may run for the House of Delegates, but the membership of the House of Peers must be chosen from the one hundred army officers who led the revolution. A bill may originate in either house, but both houses must approve a bill before it becomes law. The executive powers are assigned to a cabinet which is elected by the legislature from among its members. The legislature also appoints the Supreme Court, which can declare laws unconsitutional.

The newly written Constitution of Alpha defines the rights of the people and the powers of the government. Free speech, free press, free assembly, and free choice of religion are the rights of all citizens. One exception is that nobody may speak or write anything that advocates the return of the political party formerly headed by General Napoleon. A special court tries all political cases.

The national of Alpha is divided into twenty-five geographical districts called departments. Each department has an elected legislature that may pass laws for the district. However, the national legislature can veto any law passed by the departments that are not in the public interest. Laws passed by the departments are of lesser importance, because the Constitution gives almost all political power to the national government.

Under the government of General Napoleon, the standard of living of the common people in Alpha was low. A few wealthy people owned most of the land and capital goods. One of the first acts of the new legislature was to enact a law that no person could own more than 2,000 acres of land. All owners of more than this minimum were paid a fair price for the land that they gave up. The land was sold to peasants at a low price and with a twenty-five year mortgage.

Under the government of General Napoleon there had been a ten per cent tax on personal income and no corporation taxes. The new government enacted a graduated tax on personal income starting with one per cent for income over $500, and up to fifty per cent tax on income over $300,000. A tax was also levied on corporated income but with provisions that encouraged private investment and expansion of industries. Inheritance taxes were low. The legislature is spending a substantial portion of the tax revenue in building schools. Current plans call for six years of free education for all children.

All questions listed above require students to deduce that the Principles of U.S. Government are a key to the answer. The students must determine which one or more of the principles is involved and then describe how the principles relate to the situation.

The scoring in each problem would follow the same plan. For each principle correctly indentified and applied to solve a problem, the student receives two points. If the student identifies the principle correctly but does not relate it to the situation or relates it improperly, he will receive one point. If the student's answer shows an awareness of the principle but does not explicitly identify it, he will receive one point. The last illustrative problems listed above are more involved because they require using many or all of the principles in the same problem.

At least three scorers will correct each paper. The scorers will collectively decide on the correct answer to each item but independently rate the papers. The scorers will not have knowledge of the names of the students who wrote the tests.

The same procedure of test construction and evaluation is equally applicable in all subjects. In every case the instruction leading to application questions focuses on concepts having power to explain, classify, or solve. Appendix A identifies other concepts from social studies and science equally amenable to application questions.

APPENDIX C

ANALYSIS FOR EXPERIMENT WITH MORE THAN ONE CRITERION TEST

Diagram of the Design:

Test A

	Teacher One	Teacher Two	Teacher Three
Period One	Method One	Method Two	Method Three
Period Two	Method Two	Method Three	Method One
Period Three	Method Three	Method One	Method Two

Test B

	Teacher One	Teacher Two	Teacher Three
Period One	Method One	Method Two	Method Three
Period Two	Method Two	Method Three	Method One
Period Three	Method Three	Method One	Method Two

(Each pupil takes both tests; all other factors are between-pupil sources of variation)

Model:

$$E(x_{ptmio}) = \mu + \alpha_p + \beta_t + \gamma_m + r + \pi_{i(ptm)} + \delta_{o(i)} + \alpha\delta_{po(i)} + \beta\delta_{to(i)}$$

$$+ \gamma\delta_{mo(i)} + r\delta_{(i)} + \pi\delta_{io(ptm)}$$

Analysis of Variance Table:

Source of Variation	df	E(MS)
Period (P)	2	$\sigma_\varepsilon^2 + 9\sigma_\pi^2 + 6n\,\sigma_\alpha^2$
Teacher (T)	2	$\sigma_\varepsilon^2 + 9\sigma_\pi^2 + 6n\,\sigma_\beta^2$
*Method (M)	2	$\sigma_\varepsilon^2 + 9\sigma_\pi^2 + 6n\,\sigma_\gamma^2$
Residual (r)	2	$\sigma_\varepsilon^2 + 9\sigma_\pi^2 + \sigma_r^2$
Individual (i) within PTM	9(n-1)	$\sigma_\varepsilon^2 + 9\,\sigma_\pi^2$
Test (O)	1	$\sigma_\varepsilon^2 + \sigma_{\delta\pi}^2 + 9n\,\sigma_\delta^2$
O x P	2	$\sigma_\varepsilon^2 + \sigma_{\delta\pi}^2 + 2n\,\sigma_{\alpha\delta}^2$
O x T	2	$\sigma_\varepsilon^2 + \sigma_{\delta\pi}^2 \quad 2n\,\sigma_\delta^2$
*O x M	2	$\sigma_\varepsilon^2 + \sigma_{\delta\pi}^2 \quad 2n\,\sigma_{\gamma\delta}^2$
O x r	2	$\sigma_\varepsilon^2 + \sigma_{\delta\pi}^2 \quad 2n\,\sigma_{r\delta}^2$
(i x O) within cell	9(n-1)	$\sigma_\varepsilon^2 + \sigma_{\delta\pi}^2$
Total	18n-1	

*The major hypotheses of the study are related to these sources of variation.

Hypothesis One:

Null:

$H_o: \gamma_m = 0$ There is no difference on the total of the application test scores between pupils who were taught by methods, one, two, or three.

Alternates:

$H_1: \gamma_1 < \frac{\gamma_2 + \gamma_3}{2}$ Pupils who study by methods two and three, which emphasize interpretation and application questions, give superior performance on both tests of application thinking.

$H_2: \gamma\delta_{11} < \frac{\gamma\delta_{21} + \gamma\delta_{31}}{2}$ Those pupils who have studied by means of interpretation questions give superior performance on the first test of application thinking than those who have studied by means of memory questions.

Hypothesis Two:

Null:

$H_o: \gamma\delta_{mo} = 0$ There is no change in the difference between the experimental methods from the first test of application thinking to the second test.

Alternates:

$H_1: \gamma\delta_{22} < \gamma\delta_{32}$ On the second test of application thinking pupils who have studied by means of application questions (method three) give superior performance to those who have studied by means of interpretation questions (method two).

$H_2: \gamma\delta_{31} - \gamma\delta_{21} < \gamma\delta_{32} - \gamma\delta_{22}$ Pupils who have studied by means of method three give superior performance over pupils who have studied by method two on the second test (after application questions have been used in instruction) more than on the first test.

Section VII

REPORT ON EXPENDITURES OF FEDERAL AND LOCAL FUNDS UNDER SMALL GRANT PROPOSAL S-168

The funds appropriated by the U. S. Office of Education were spent between August 1, 1964 and July 31, 1965 in the following manner:

Categories	Federal Funds Proposed for Expenditures	Federal Funds Acturally Spent
Personnel		
3/5 time instructional secretary for 9½ months at $2520 per annum	$1197.00	$1197.00
Fringe benefit 11% ($6797.00)	253.00	253.00
Statistical Consultant (8 days at $50.00 per day)	400.00	200.00
350 teacher days divided among 66 teachers at $16.00 per day	5600.00	5800.00
Supplies and Materials		
Paper and duplicating supplies	50.00	50.00
	$7500.00	$7500.00

For local expenditures see the next page.

The Manitowoc Public Schools fulfilled its contracted obligation in the following manner:

Categories	Local Funds Proposed for Expenditures	Local Funds Actually Spent
Personnel		
1/3 time director ($10,500.00 annual)	$3,500.00	$3,500.00
1/10 time co-director ($10.000.00 annual)	1,000.00	1,000.00
Project work days for teachers (annual average salary estimated $6,500.00)	5,000.00	8,000.00
3/4 time instructional secretary for 9½ months. ($2520.00 annual)	1,500.00	1,500.00
Fringe Benefit 11%	495.00	495.00
Supplies and Materials		
Paper and duplicating supplies	300.00	200.00
Special instructional materials for unit construction	1000.00	500.00
Other		
Travel $.07 per mile & per diem for approximately 7 days	150.00	150.00
Total	$12,945.00	$15,345.00

PRECEDING PAGES MISSING

5. Living things depend on other living things.

   a. Animals (including people) depend on plants and on other animals for their existence.

   b. Plants depend on animals (including people) for their existence.

6. Many objects, living and nonliving, can be identified by sounds.

   a. AAAS Part one--Observation 4 - Perception of Sound

B. Matter

1. Matter is anything that fills up space.

2. Forms of matter are everywhere around us.

3. Matter consists of solids, liquids, and gases. (In kindergarten we consider air instead of gas)

4. Matter can be identified by its color, weight and shape.

5. Solids have a definite shape and take up definite space.

   a. Solids have definite size, weight, color.

   b. Solids may be either living or nonliving.

   c. Each solid has its own properties.

   d. Solids may be classified.

   e. Solids have definite uses.

6. Liquids do not have a definite shape but fit into the container in which they are poured.

   a. Liquids may be classified (most familiar are milk and water)

   b. Liquids have weight.

   c. Liquids are useful to our living.

7. Gases, while a form of matter, will be saved for when children can better comprehend. Use "air" if it comes up. Otherwise see energy for air.

   AAAS Part one

   Observation 2 and 3
   Space/Time 2 and 3

   Observation 8

C. Energy

1. Energy is the ability to move things.
2. All motion involves energy.
3. Energy is power or force.
4. We use energy to push or pull.
5. We use energy to lift.
6. We use energy to throw things.
7. We use energy to swing.
8. Wheels make it easier to move things.
9. Magnetism can be used to move things.
10. Machines are used to move things.
11. Gravity is the force which holds us to the earth. (Will be too difficult a concept for most children but if they ask about it the concept is not ignored)
12. Atomic energy is a form of force.
13. Moving air is called wind.
14. Muscles produce energy and are used to move things.
15. Movement sometimes causes sound.

AAAS Part one

Observation 9

FROM BASIC CONCEPTS TO QUESTIONS

Are my kindergarten children capable of sharing a basic concept and using it in their thinking to answer questions on the subject of the concept? I believe they are and that they will enjoy the challenge. (Use the name of colors in conversation or comments whenever possible)

First I will try to keep it on the fun level and enjoy with the children their success in remembering a concept and using it in different units or activities. While the questions will not always be "fun" questions the children will have the fun of trying to answer them and they will surely enjoy the feeling of having "created" the answers from their own thinking.

Just as we do not color or paint the childs' picture for him let us not give him answers to questions which he can develop for himself.

Just as we do our best to stimulate him to do his best in block construction, molding with clay, or painting at the easel, so let us do our best to stimulate him to do his best thinking. In other words let us include thinking within the bounds of the creative arts. Children can be made aware of their good thinking and this awareness will help them to not only answer questions better but to ask more questions and try to seek the answers for themselves.

Children can use science concepts in different situations and lift their thinking to answer questions pertaining to the concept. Remembering to apply the concept will strengthen the learning and also give the children an intellectual lift. Concepts which would be meaningful to the children follow with sample questions which could be asked at different times during the year.

I. Process Concepts using the AAAS material.

A. Observation 1. Perception of Color
The emphasis is on observation as a concept, but color is used to develop observation in this instance.

1. Problem: To teach the children to observe color in their surroundings and to distinguish between colors. This starts early in the year and continues throughout the year. Colors in different instances will be noted and comparisons made. Children will come to know color through repeated observations. Use the name of colors in conversation or comments whenever possible.

a. Questions: Typical questions which might be asked.

1' The sky is blue, the grass is ______.

2' See Mary's pretty blue dress. What other girls are wearing blue dresses today?

3' All children wearing black shoes stand at the door.

4' Is Sue's dress a lighter or darker green than Anne's?

5' What color is pink most like?

6' If pink is like red what color is lavender most like?

2. Problem: Plan a game to determine if children know the colors well enough and are observing enough to know if one is gone. Use large (cardboard or wood) lollipops of different colors.

a. Questions: Lay all lollipops out on the floor. Children observe their placement and name the colors. One child goes out and a lollipop is removed. When he comes in he is to name which one is gone using the name of the color.

3. Problem: Plan an activity to determine if the children recognize colors and also some hues or tints of a color.

See AAAS Part one, Activity 1 and 2

a. Question: Sort the colored papers according to colors and hues or tints.

B. Space/Time. Direction is a space/time concept. The emphasis is on space/time as a concept, but direction is used to develop space/time in this instance.

1. Problem: To provide children with experiences in recognizing elementary directions (up, upward, and down, downward, forward and backward, and right and left.)

a. Questions: After telling a story of a rabbit who hops, the children

1' Play they are rabbits. Let the children follow your direction to hop up and down, backward and forward.

2' Bounce rubber balls, say "down" "up" as they bounce.

3' Use imaginary balls, say "down" "up" as they pretend to bounce.

4' Use a large cardboard arrow, point it up or down or to the right or left. Children point with arm the same direction as the arrow.

5' Play "Simon Says".

AAAS Space/Time 4 - Activity 1

6' AAAS Space/Time 4 - Activity 2

(a) Learn right and left hand
(b) Salute the flag with right hand over heart
(c) Sort shoes and mittens with a left and right for each
(d) Travel in a car on the right side of the street

ABSTRACT

RELATIONSHIPS BETWEEN CERTAIN INSTRUCTIONAL QUESTIONING STRATEGIES AND LEVELS OF UNDERSTANDING OF CONCEPTS

Problem

The objective of the proposed study is to investigate relationships between questioning strategies used during classroom instruction and the level of understanding achieved by pupils. The level of understanding that is the criterion is called "application," which is defined as the ability to use previously studied material in new situations when there is no specific direction as to which material is relevant. The proposed study will attempt to discover those sequences and categories of instructional questions which are effective in inducing understanding at the application level in different subject matter fields.

The rationale for the questioning strategies and the criterion level of understanding is based on the cognitive Taxonomy of Educational Objectives (Bloom et al., 1956), as modified for classroom instruction (Sanders, 1965). By means of this rationale, it is possible to distinguish the kinds of questions used in instruction into different levels according to the degree of understanding required of the pupil. The development of the rationale for instructional questions was occasioned by what appeared to be a disturbing overemphasis on memory questions, those questions which ask the pupil to remember information but not to use it, both in instruction and in evaluation. The rationale and related investigations are attempts to raise the cognitive outcomes of classroom instruction from the memory level to the thinking level by means of the questions used during instruction.

Procedures

The relationships between the dependent variable (understanding at the application level) and the independent variables (questioning strategies during instruction) will be investigated by means of controlled classroom experiments. The experiments are to be conducted in a variety of subject matters and grade levels in order to ascertain those principles of the rationale that have general applicability and those principles that can apply only as modified for specific age levels and specific instructional topics. The experimental treatments will be carried out both by regular teachers and by project associates and will rely on instructional materials organized specially for the project.

The proposed study is of a two year duration. The first six months will be devoted to organization and informal tryout of experimental materials, and the remainder of the time will be devoted to conducting and analyzing the classroom experiments.

COMMUNICATING CONCEPTS

A concept is the meaning or meanings associated with a symbol, thing, or experience. Some concepts are relatively universal, others relatively subjective. Some are quite simple, others highly complex. Some are relatively static, others change as more experience and knowledge add to and color a pattern of meanings.

Basic social studies concepts tend to be generally universal, quite complex and relatively dynamic. This makes communication of social studies concepts difficult.

The concept of culture, for example, can be conveniently communicated by using the written symbol culture, but there is no guarantee that the writer and the reader of the word associate the same complex of meanings with the symbol. Or, the concept of culture could be expressed as a definition, but there is no guarantee that the definition conveys the significances of culture. Or, in yet another attempt, the concept of a culture could be stated as a generalization, but there is no guarantee of mutual understanding of the terms and more simple concepts in the complex generalization.

The problem then is how to communicate basic social studies concepts in a way that is convenient, meaningful, clear, and complete. We must communicate concepts in defining curriculum, but such communication may be inadequate or even misleading if concepts are stated simply as symbols, definitions, or generalizations. Yet we cannot use a whole course of study as a means of communication.

With this problem in mind, the following approach will be used here to more efficiently, but effectively, communicate concepts. The concept will first be stated as a convenient term or phrase. A generalization containing the more important meanings of the concept will be stated next. Related sub-concepts, generalizations, and definitions will follow in an outline to make the concept more complete and clear.